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RURAL SCHOOL SURVEY *of* NEW YORK STATE

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VOCATIONAL EDUCATION

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RURAL SCHOOL SURVEY *of* NEW YORK STATE

VOCATIONAL EDUCATION

By

THEODORE H. EATON

PROFESSOR OF RURAL EDUCATION
CORNELL UNIVERSITY

Ithaca, New York
1922

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FOREWORD

UNDER the education law of New York State schools in districts of less than 4,500 population are rural. In the organization of this phase of the survey it was decided to limit the study of vocational education to schools that were in rural districts in the legal sense. It is true that there are departments of vocational agriculture and homemaking in larger centers that are serving young people from the farms, but the facts that have been secured in this study undoubtedly give a fair picture of the conditions in the state. Besides the departments of vocational agriculture and homemaking that have been established in the high schools there are six special state schools all of which are teaching agriculture and some of them are giving work in homemaking. Because of their intimate relation to farm life five of these schools have been included in this study. In this report only the instructional work of these schools is treated. The administrative problems that they present are discussed in the section of the survey dealing with "administration and supervision."

It is believed that this is the most comprehensive study that has thus far been made of a state's efforts to meet the needs of rural communities for vocational education. As New York was one of the pioneer states in making provision for state aid to stimulate the development of vocational education, the results of this inquiry should be of value not only to those who are in charge of the development of vocational education in New York, but it should be helpful to those directing similar work in other states. The philosophy that is involved in the discussion of problems studied appeals to the director as being sound.

This study was prepared by Dr. T. H. Eaton under the general direction of Dr. W. C. Bagley. The funds for conducting this study and for printing this report were provided by the Commonwealth Fund. A complete list of the reports will be found at the back of this volume.

GEO. A. WORKS, *Director.*

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PREFACE

EVERY assistance has been rendered to the surveyor by the Division of Vocational and Extension Education at the instance of the director, Mr. L. A. Wilson. All the resources of the Division in the way of records and publications have been freely opened.

For painstaking assistance in the matter of securing departmental data, in suggesting new sources of possible data, in answering questions, explaining policies, pointing out weaknesses and indicating strength, particular acknowledgment is due the following in their several fields:

Mr. Arthur K. Getman, Specialist in Agricultural Education.
Mr. A. P. Williams, Assistant in Agricultural Education.
Mr. W. J. Weaver, Assistant in Agricultural Education.
Miss M. E. Van Lieuw, Specialist in Homemaking Education.
Miss T. E. Kauffmann, Assistant in Homemaking Education.
Mr. R. H. Rodgers, Specialist in Industrial Education.
Mr. R. P. Snyder, Specialist in Junior Extension Education.

For services rendered in the observation of schools and for careful report of such observation acknowledgment is due the following:

Prof. F. W. Lathrop, of Minnesota, high school agriculture.
Mr. W. W. Reitz, high school agriculture.
Miss Helen Estabrook, of Morrisville, high school homemaking.
Mrs. E. D. Bentley, high school homemaking.
Mrs. L. V. Walker, high school homemaking.

For suggestive criticism of plans of procedure particular acknowledgment is due to:

Prof. G. A. Works, Cornell.
Prof. W. C. Bagley, Columbia.

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For data of high schools other than agricultural and for assistance in the evaluation of teaching to:

Prof. E. N. Ferriss, Cornell.

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Prof. Cora E. Binzel, Cornell.

For the most cordial coöperation in making available for study the teaching resources of the state schools of agriculture and homemaking to:

Director H. B. Knapp, of Cobleskill.
Director I. M. Charlton, of Morrisville.

Last and not least the surveyor acknowledges gratitude for untiring and conscientious work in the summarization and tabulation of data from all sorts of sources and from diverse forms of record to:

Miss Ina M. Cornish, of Ithaca.

But without the coöperation of the teachers of agriculture and homemaking and their pupils in the high schools, their sacrifice of time and effort to meet the requirements of an exacting and burdensome inquiry, the chief value of the study would have been lost.

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VOCATIONAL EDUCATION

CHAPTER I

ADMINISTRATION

The Legal Basis

VOCATIONAL Education in public schools in political units of less than 4,500 population is conducted under Article XXII of the State education law. The article deals with "general industrial schools, unit trade and technical schools, part-time or continuation schools, practical arts or *homemaking schools*, and schools of *agriculture*, mechanic arts and *homemaking*." The word "school" as defined in the article includes "any department or course of instruction established and maintained in a public school for *any* of the purposes specified in the article."

Schools in operation in 1920–21 in units of less than 4,500 population fall under the head of general industrial schools, two in number, schools of agriculture and homemaking, forty-three in number, schools of agriculture, twenty-three in number, and schools of homemaking, thirteen in number. All eighty-four institutions are maintaining courses of instruction in vocational subjects under Article XXII.

The authorization of those schools is found in the following statement:

"The board of education of any union free school district *shall* . . . establish, acquire and maintain general industrial schools, . . . schools of agriculture . . . and homemaking . . . whenever such schools shall be authorized by a district meeting. The trustees or board of trustees of a common school district *may* establish a school or a course in agriculture, . . . and homemaking, when authorized by a district meeting.

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"The board of education . . . is vested with the same power and authority over the management, supervision and control of such schools and the teachers or instructors employed therein as such board now has over the schools and teachers under their charge. Such boards of education shall also have full power and authority:

"1. To employ competent teachers or instructors,
"2. To provide proper courses of study,
"3. To purchase or acquire sites and grounds and to purchase, acquire, lease or construct, and to repair suitable shops or buildings and to properly equip the same,
"4. To purchase necessary machinery, tools, apparatus and supplies.

"The board of education shall appoint an advisory board of five members representing the local trades, industries and occupations. . . . It shall be the duty of such advisory board to counsel with and advise the board of education in relation to the powers and duties vested in such board" under the article.

State Aid For Such Schools

"The Commissioner of Education in the annual apportionment of the state school moneys shall apportion therefrom to each . . . school district for each general industrial school; school of agriculture . . . and homemaking, maintained therein for thirty-six weeks during the school year, and employing one teacher whose work is devoted exclusively to such school, and such number of pupils as may be required by the Commissioner of Education *having an enrolment* and maintaining an *organization* and *course of study* and *conducted in a manner approved* by him, a sum equal to two-thirds of the salary paid to such teacher. Such teacher *may* be employed for the entire year, and during the time that the said school is not open shall be engaged in performing such educational services as may be required by the board of education or trustees, under regulations adopted by the Commissioner of Education. Where a contract is made with a teacher for the entire year and such teacher *is employed for such period*, as herein provided, the Commissioner of Education shall make an additional apportionment to such . . . district of the sum of *two hundred* dollars.

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But the total amount apportioned in each year on account of such teacher shall not exceed *one thousand dollars*."

"The Commissioner of Education shall also make an additional apportionment . . . for each additional teacher employed in the schools mentioned . . . for thirty-six weeks during the school year, a sum equal to one-half the salary paid to each such additional teacher, but not exceeding *one thousand dollars* for each teacher."

"Any person employed as teacher as provided herein *may serve as principal* of the school in which the said industrial . . . school or course, or school or course of agriculture, . . . and homemaking is maintained."

"All moneys apportioned by the Commissioner of Education for schools under this article shall be *used exclusively* for the payment of the *salaries of teachers* employed in such schools in the . . . district to which such moneys are apportioned."

"The board of education or trustees of each school district which maintains a general industrial school . . . school of agriculture, . . . and homemaking, . . . shall include in its estimate of expenses pursuant to the provisions of this chapter the amount that will be required to maintain such schools after applying toward the maintenance thereof the amount apportioned therefor by the Commissioner of Education. Such amount shall thereafter be levied, assessed and raised by tax upon the taxable property of . . . the district at the time and in the manner that other taxes for school purposes are raised in such . . . district."

CRITICISMS.—Excellent as is the policy of State aid as administered by the Division of Vocational and Extension Education in attempting to extend opportunity to those communities which can most profit by it, there are two distinct weaknesses in the present regulation. The first is that communities are encouraged to tax themselves for the support of vocational teaching on the basis of the margin necessary to minimal cost of inauguration and upkeep over and above what the state and federal funds will provide. Or, they figure first how much they can get from the state, then how much they must "put up" in addition. If the factors of ability to pay

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and willingness to pay are to control in the allotment of aid, the position should be reversed. First just what the community can pay and will do for the support of vocational education should be determined. On the basis of that result the State should come in to equalize burden, to reward sacrifice and penalize stinginess. The poor and the earnestly willing community should receive large aid to enable the fullest possible opportunity for its children, the rich and penurious community no aid. At present the two are on an equal basis with respect to allotment.

The second weakness, to which the specialist in agricultural education has made emphatic reference in suggestions offered at the request of the surveyor for strengthening the administration of the work, is the inequitable burden placed upon the village or union free school district which establishes vocational work in agriculture. The work is chiefly beneficial, in a direct and immediate sense, to pupils from farms, that is, in many cases to those from districts which are not taxed directly for the support of the school. The development of vocational work in appropriate centers is often hindered by the fact. Though in the long run village support of agricultural instruction, in the small degree to which it is necessary now, may be sound economy and is certainly in accord with sound social policy and Christian ethics, yet it is the exceptional taxpayer who can see it so. A larger unit of school taxation and administration would tend to equalize financial burdens and to admit to participation in control those most immediately interested in vocational work in agriculture, namely, the farmers of the outlying districts.

Modifications of Original Plan.—The acceptance by the State legislature, February 23, 1917, of "all the provisions and benefits" of the Federal Act for Vocational Education modifies the State legislation in two ways: (1) By specifying the aim of vocational education to be preparation for "useful employment" in pursuits of industry, agriculture, and homemaking; and (2) by making additional sums available for the payment of salaries of teachers in industrial and agricultural work in other than the intermediate schools, for the training of teachers of industrial, agricultural, and

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homemaking courses, and for the supervision of vocational schools under all three categories.

The original law has been modified with respect to the schools included above on several occasions, chiefly with regard to (1) the amount of State aid, (2) the length of the school year, (3) the minimum enrolment necessary to reimbursement through State aid, and (4) the creation of advisory boards.

ALLOTMENTS.—The education law in 1910 allotted $500 of State aid for the first strictly vocational teacher in any school and $200 for each additional teacher, the use of such moneys being limited only to maintenance of the approved schools. The allotment in 1913 became two-thirds of the salary of the first teacher up to $1,000 as at present; the additional allotment of $200 for teachers employed the full year, as at present, was added and the aid for the second teacher employed made one-third of the salary paid. The enactment making use of aid applicable solely to salaries of teachers, then became operative. In 1919 the allowance for the second teacher employed was increased to the present standard.

The present allowance, then, in the case of homemaking teachers is two-thirds the salary paid, when such teacher is the sole or first teacher of vocational subjects in a school, one-half the salary in case she is a second teacher, in no case exceeding $1,000 per teacher. The same regulations hold with respect to vocational teachers in industry and agriculture, with an additional allotment from State funds of $200 each for agricultural teachers, all of whom are employed for the full year. In no case is the total allotment for each teacher in excess of $1,000. In addition Federal funds are available for aid in industrial and agricultural courses, not including the intermediate schools, again applicable to salaries only. The following principle is used in allotment. When the full State quota of $1,000 per teacher is used in paying the salary of a teacher, Federal funds will be used to match the locally raised dollar up to $200. When the local expense per teacher goes beyond that sum, two dollars of Federal funds for each additional locally raised dollar are allowed. To illustrate: A local board employs a teacher of agriculture for the full year at a salary of $1,300. The local tax supplies $366.67, the State grants reimbursement of $733.33 plus $200 for

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the summer employment. No Federal funds are used. If the salary be increased to $1,400; local taxes supply $200; Federal funds, $200; the State, $800 plus $200—the full maximum. At $1,500, local taxes supply $233.33, Federal funds $266.67, the State $800 plus $200. Thus a community can as cheaply offer a salary of $1,900 as one of $1,300, with the chances of securing a competent teacher greatly increased. In that case the local tax comes to $366.67, the Federal allotment to $533.33, and the State allotment to $800 plus $200. In 1920–21 no teacher of agriculture received less than $1,600, so that Federal funds entered in all cases other than those of intermediate schools.[1] In 1920–21 the median cost for agricultural teachers was to communities $400; to the Federal government, $600; to the State, $1,000. Thus the cost to a district for a college trained and professionally equipped man teacher or principal of the high school under the vocational organization was little more than half the salary of an elementary-school teacher in a one-room school. It is often cheaper for a rural community to maintain a vocational department, wherein local needs and resources are controlling factors, than to maintain purely general or college preparatory curricula, wherein such are largely ignored. Certainly very little in the way of financial burden is imposed upon the rural community which desires to increase the opportunities of its sons and daughters in high school through vocational teaching.

School Year

Under the original law the minimum length of school year was set at thirty-eight weeks. In 1913 that was reduced to thirty-six weeks, the present standard.

Minimum Enrolment

The original law set a standard for vocational courses of a minimum of twenty-five pupils. Many small rural communities, wherein the work was particularly appropriate, were unable to meet

[1] Intermediate schools, because they are giving instruction designed to meet the needs of pupils under 14 years of age, are ineligible to Federal aid. The handicap in selection of a principal is indicated in the section dealing with teachers.

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this requirement, and of those that did qualify, some did so by resort to "stuffing" the enrolment by putting girls into the agricultural course and village boys and boys interested in nothing in particular that the school provided. In 1913 the minimum was reduced to fifteen. In 1919 the enrolment minimum was left to the discretion of the Commissioner of Education. At present, in execution it is set tentatively at twelve pupils, or the reasonable prospect of twelve, in each course offered.

Advisory Board

Not until 1919 was the requirement set that communities under 4,500 in population *must* appoint an advisory board. The words of the enactment, "local industries," have been interpreted to mean homemaking occupations in the case of homemaking courses, farming occupations in the case of agriculture. Advisory boards of women are established in the case of a majority of the homemaking departments in rural districts supporting vocational schools, and boards of farmers in all but two cases with agricultural departments. The figures reported are given in sections dealing with teachers and their professional improvement.

In the reports later given upon the yearly increase in number of schools, and the median yearly enrolments in homemaking and agriculture the effect of the changed standards of enrolment and the increasing allotment in State aid is apparent. In the case of teachers' salaries the influence of the last is plainly evident. It accounts, in part, too for the relatively high technical and professional standing of teachers of agriculture.

Administrative Control

Supervision and inspection, and approval and recommendation for reimbursement out of State and Federal funds, are administered through a division of the State Department of Education known since 1919 as the Division of Vocational and Extension Education, from 1913 to 1919 as the Division of Agricultural and Industrial Education, and previously as the Division of Vocational Schools. It is organized under a Director, with specialists assisting in administration of the law in respect to the several types of industrial

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schools, the homemaking schools, and the agricultural schools. So far as industrial education is concerned the division does not in reality deal with the smaller communities classed as rural at all, the two technical exceptions being the general industrial schools at Sloan and East Syracuse. Both villages are rural only in the sense that they have populations below the 4,500 mark. They are not included in the study and report.

Homemaking

In homemaking the work is conducted by two specialists, both women of considerable experience, excellent technical training, and some professional training.[1] In addition, however, to the vocational departments of public high schools included in the study following, they are charged with responsibility for supervision, inspection, and approval of all day schools of homemaking, of homemaking in State schools, in evening schools, part-time schools, continuation schools, and all unaided courses in both secondary and elementary public schools. Since the fifty-six schools in the rural districts constitute but a minor fraction of the total with which they are engaged, the two women, in spite of a more than usual competency, are overloaded. If anything like helpful supervision effective in the rural districts is to be provided the staff for home-

[1] Preparation of Supervisory Officers in Homemaking.
Specialist in Homemaking.
B.S. degree and diploma in Household Arts Education, Columbia University, Kansas State Agricultural College one year, Pratt Institute two years, Teachers' College, Columbia University, one year and one summer.
Teaching Experience.—Assisted in evening classes and settlement work two years. Instructor and assistant professor in domestic economy and supervisor of practice teaching and women's dining service at Oregon Agricultural College, three years and one summer, head of department of Home Economics, Albany State Teachers' College, seven years. Half time specialist in homemaking, division of Vocational and Extension Education two years.
First Assistant.—B.S. in Home Economics, Ohio State University, at completion of four years' course. Eighteen hours' credit in professional studies toward M.S. degree, Chicago University.
Teaching Experience.—Public schools, grade and high, Ohio, two years. One year in Settlement House teaching, Columbus, Ohio. Evening school teaching, one year. Extension teaching, Ohio State University, five years, instructor in Home Economics at same institution, two years. Supervisor of Home Making in public schools, Ohio, two years.
Technical and Vocational Experience.—Managing cafeteria and tea room, two summers; managing a teachers' house, five years.

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making must be increased. A regional system of supervision would seem to be more effective than the present highly centralized system in giving the frequent and intimate touch necessary to the maintenance of high efficiency among the teachers. A saving in time and expense of travel over so large a State as New York would probably be a considerable item.

At present, partly as a result of the overloading mentioned, partly because of relatively frequent changes in the staff, the office records, other than financial, are quite unsystematic and incomplete. It was not possible during three weeks spent at the office, and with the most courteous and patient assistance from the two specialists, to obtain an altogether certain list of rural high schools approved for the year, or a complete and accurate listing of teachers' salaries, qualifications of teachers, and enrolment of pupils for the year 1920–21. As for the content of courses of study, even in terms of subjects taught during the year, and the range and nature of equipment in use, only fragmentary records based upon the more recent "visitation memoranda" could be gathered. A consistent development of what seems to be a rationally conceived and progressive policy is improbable, except the staff be increased and methods of record systematized.

Agriculture

Agricultural courses and schools are in charge of a specialist in agricultural education, who has been associated with work in the State for all but a brief period since its inception,—an active, experienced man, well trained technically, and of unusual professional attainments. With him are two assistants both agricultural college graduates, graduate students in vocational education, and experienced teachers in the agricultural schools of the State. These three men[1] are charged with the administration (May, 1921) of 76

[1] *Specialist.*—Six years' farm experience. Graduate of New York State College of Agriculture. Three years charge of teaching training department State Normal and Training School, Cortland. Two years assistant in agricultural education, State Education Department; one and a half years, State supervisor and teacher trainer, in New Jersey; three years' experience supervisor in New York State. Graduate work at Teachers' College, Columbia University, and School of Education, Harvard University.

First Assistant.—Farm reared. Graduate of Hobart College, A.B. degree.

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agricultural departments of public high schools, two unaided courses in public high schools, and the inspection and approval of the work in six State technical schools of agriculture. The supervision and inspection of these schools are more nearly adequate than those in any special field of secondary rural education in the State. Visits, regional conferences and State conferences bring the teachers of agriculture and the administrative officers into more frequent and intimate touch than in any work of the department affecting the high schools of the rural communities. To one assistant are assigned the schools west of Syracuse, to the other those east of Syracuse, and the specialist himself acts as supervisor at large. By far the larger portion of the time of all three men is spent in the field with teachers and with schools. Yet teachers are asking for more frequent conferences, more frequent visits, and longer visits.

RECORD OF SUPERVISORY VISITS DURING THE TWELVE MONTHS, JULY 1, 1919, TO JULY 1, 1920

No. visits per school	Number of schools			
	By staff members	By first specialist	By first assistant	By second assistant
1	5	35	27	15
2	15	15	16	15
3	28	3	8	3
4	19	..	..	..
5	2	..	..	..
Total visits...	205	68	83	54

Total visits 1920–21, 204

Graduate of New York State College of Agriculture, B.S. degree. Three years' experience as teacher of agriculture at Hamburg, N. Y. One year's experience as teacher of agriculture and principal at Burnt Hills, N. Y. Graduate work during one summer session at State College of Agriculture, Ithaca. Four years' experience as supervisor.

Second Assistant.—Farm reared. Graduate of Massachusetts Agricultural College. Four years' experience as teacher of agriculture at Highland, N. Y. One year's experience as field agent for the Military Training Commission. One year graduate work in rural education at the State College of Agriculture, Ithaca. Two years' experience as supervisor.

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During 1920–21 regional conferences of teachers were conducted by the specialist and one assistant, with a member of the teacher training staff, for one day, in eight centers. A State conference for teachers and principals and the staffs of the State schools of agriculture was held for a week in the summer at the New York State College of Agriculture, under direction of the specialist. A second week at the same place was given to a conference of principals on problems relating to their work as principals. In addition the specialist and his assistants visited for conference boards of education, district superintendents, and meetings of patrons in numerous communities wherein schools were already established or in contemplation.

Accessory supervision, dealing with particular problems of agricultural teachers, is provided by a working agreement between the division and the teacher-training department at the New York State College of Agriculture, whereby during approximately four months of the year one of the teacher-training agents visits at his own discretion graduates of the department in the schools, and, at the request of the division such other teachers, graduate or not, as the specialist may designate for assistance. In 1920–21 he made 45 such visits. Under the same agreement the shop-work instructor at the College of Agriculture has given no small measure of time to assisting teachers in the formulation of courses and the choice of equipment. His visits were 27 in 1920–21.

In homemaking the teacher-training department has given some supervisory assistance also. Fourteen visits were made in 1920–21. Copies of all letters sent to teachers or schools covered by the agreement, sent out by either party to it, are made in duplicate and regularly exchanged.

The records of the agricultural work for recent years are fairly adequate and complete. Yearly plans of study are sent in by teachers, criticized and approved or rejected by the specialist, enrolment is known and recorded, equipment lists on file, records of projects fairly complete and systematic, salaries of teachers and their general qualifications of record.

Criticism.—There should be, for appropriate placement approval, more specific and detailed records of the qualifications of teachers, a

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record in enrolment of those pupils who are farm boys, and a systematic recording of the occupations into which graduate and non-graduate matriculants go. The division should, after ten years of work with agricultural schools, be ready to place before the people results in terms of selection, placement, and, possibly also, estimated success of pupils in agricultural pursuits. That it cannot do at present.

The present specialist, in view of his prolonged and intimate experience, can state why such and such a teacher was approved for such and such a position, demanding specific abilities, he can tell quite accurately why such and such a school is thrifty and successful, why another is weak, why another has been abandoned. He can and does state positively that the agricultural course is selective of farmers' sons and country reared boys to a high degree, and that those boys tend to go to farming directly, or to the agricultural college. But there is no record by which he can prove his statements, confirmed in part at least by the results of the survey, or by which a successor could support the work of the division or be guided in policy in those important respects. "Red tape" has been pretty well avoided in the office. There is not much of record that is not worth recording, but significant items, not particularly difficult to obtain, such as have been mentioned are not included in the present system.

Organization of Schools in Agriculture and Homemaking

Schools of "agriculture, mechanic arts, and homemaking" are "open to pupils who have completed the elementary school course *or* who have attained the age of fourteen, *or* who have met such other requirements as the local school authorities may have prescribed." In practice the requirement means almost without exception the completion of a majority of the Regents requirements for the eighth grade certificate, or the same standard as is set for admission to all high school courses.

The legal designations of such schools as are carrying on vocational teaching in the rural districts of the State are—(1) schools of agriculture, mechanic arts, and homemaking, and (2) schools of practical arts or homemaking. Such schools, as has been noted, must main-

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tain an enrolment, an organization, a course of study, and be conducted in a manner approved by the Commissioner of Education.

Until 1919 only the first class of schools was approved in the rural districts because of the regulation of the Division of Agricultural and Industrial Education that "A school of agriculture, mechanic arts, and homemaking *must* conduct a course in agriculture and *may*, also, offer a course in homemaking. These courses must be an integral part of the school." Nothing is said of a course in mechanic arts, and no school offers such a course. The inclusion of the designation in the legal title is purely euphemistic at present, but probably would give legal sanction to such courses. In all such schools for purposes of allotment of aid the teacher of agriculture was rated the first vocational teacher, the teacher of homemaking the second. In 1919 it became possible to establish courses in homemaking without accompanying courses in agriculture or to discontinue agricultural teaching without discontinuing homemaking. In such schools of "practical arts or homemaking" the homemaking teacher becomes, for purposes of aid from the State, the first vocational teacher.

Two forms of organization are approved for "schools of agriculture, mechanic arts, and homemaking"—the intermediate school, and the high school department; one form, the high school department, for "schools of practical arts or homemaking."

Intermediate Schools

The official statement of organization is as follows: "Intermediate schools of agriculture, mechanic arts, and homemaking. These are small schools of distinctly rural type offering four years of vocational work based upon *six* years of elementary school work. This type of school is not to be maintained in connection with any other secondary school course or department. These schools are planned for districts which do not at present (1916) maintain an academic department. Districts now maintaining an academic department of junior or middle grade may reorganize and establish an intermediate school."

It is noteworthy that the four schools in existence in 1920 were all reorganized academic schools—three of junior and one of middle

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grade. In spite of the regulation they have not lost or changed their academic rating by the reorganization, and are still rated J and M respectively in the official handbook of the department. Two such schools have reorganized again, previously to 1920–21 and are now high schools, maintaining vocational departments. The form of organization of the intermediate school is not and never has been popular.

The statement continues: "The course is so organized that pupils who are graduated from the intermediate school, may complete an approved high school course by two years of additional work.

"In addition to the elementary teaching staff there should be three vocational teachers: (1) A principal qualified to teach agriculture; (2) a woman qualified to teach homemaking subjects; (3) a teacher qualified to teach English, history, etc. Each of these teachers should hold a special vocational certificate for the particular work in which he or she is engaged."

There is no modification of the academic subjects for vocational purposes—as probably there should not be—and accordingly the third teacher is "vocational" only in the sense of being one counted for State aid. In practice principals and homemaking teachers are teaching subjects other than agriculture and homemaking.

The curriculum suggested and fairly closely followed is:

Grade VII	Periods per week
English	5
Arithmetic	5
Geography	5
Agriculture (boys)	10
Homemaking (girls)	10

Grade VIII	Periods per week
English	5
Mathematics	5
History	5
Agriculture (boys)	10
Homemaking (girls)	10

Grade IX	Periods per week
English	3
Mathematics	5
Biology	5
Agriculture (boys)	10
Homemaking (girls)	10

Grade X	Periods per week
English	3
Mathematics	5
History	3
Agriculture (boys)	10
Homemaking (girls)	10

As with many school curricula, it is noticeable that the more advanced (and presumably capable) the pupil becomes the less the subject burden, in periods at least, is put upon him. The first-year work in agriculture and homemaking is not of the type offered in

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the high schools, being of the "Junior project" sort and not vocational. Boys and girls carry on projects in poultry, swine, calf raising, crop growing, etc., and cooking, sewing, canning, etc., respectively, with formal instruction of an elementary and general nature in relation to those projects. In Grade VIII and thereafter the work is that of the high school departments in vocational subjects.

That there may be guidance value, as well as liberalizing and vocational value in the preliminary year is undoubted, although that purpose is not manifest in the organization of the work. But the pupil who may find the work distasteful or himself unfit, or, the boy particularly, who has a non-agricultural vocation in mind, or who desires preparation for a liberal arts or engineering or business college, has no alternative but to go on with three years of work inappropriate to his needs or leave school. The administrative difficulty of providing a range of choice in a small school with three teachers and with but two years beyond the eighth grade is great. But the assumption that three full years of vocational preparation in just two lines are necessary is unsound. By cutting the time for strictly vocational work in half, for instance, the range of choice by substitution of other vocational or non-vocational work could be doubled without increasing the teaching load, although necessarily adding to the qualifications of teachers. The salaries of teachers in intermediate schools are in the lower range of those paid to vocational teachers. It is not certain that their qualifications are lower than those of departmental teachers and high school agricultural principals. But if an organization more effective is to enable the intermediate type of school to be largely useful it is fairly certain that the qualifications of teachers must be higher, or at least of greater range.

High School Departments of Agriculture

Regulation and Policy.—Bulletin 703, 1920, of the State Department of Education, makes the following statements with regard to the organization of high school departments of agriculture:

"A high school department of vocational agriculture is to be considered an integral part of the organization of a public high

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school. Pupils in such a department recite their non-vocational subjects, such as English, history, economics, science, and mathematics, in the same classes with pupils in other departments in the school.

"The principal of the school is responsible for the general administration of the department of agriculture and for making administrative and financial reports to the Division of Vocational and Extension Education.

"When local school officials contemplate the establishment of a high school department of vocational agriculture, the following information should be furnished to the Division of Agricultural and Industrial Education: (1) Number of boys in the academic department, (2) number of boys residing on farms, (3) registration of boys in the grammar grades of the rural schools tributary to the high school, (4) demand for instruction in vocational agriculture, (5) total assessed valuation of the school district, (6) extent to which farmers will coöperate in promoting the work of the department of agriculture.

"When this information is received, if conditions seem to warrant, a detailed survey will be made by representatives of this division who will visit and confer with the school officers and other persons interested in organizing and promoting instruction in vocational agriculture."

In practice, when application is made to the division, whether or no full data have been supplied, the specialist in agricultural education, or one of his assistants goes to the community, confers with the school board, business men, and farmers, and if interest seems large or opportunity sufficient secures the appointment of a survey committee to study and report on, not only the points indicated above, but also the prevalence and extent of various types of farming in the region accessible to the school. Except for the general "sounding out," and the indications of what data are needed and how they are to be procured the division does not make a "detailed survey." It throws the responsibility for an accurate representation of needs and opportunities, properly enough, back upon the community which desires to establish the course. It then passes upon the situation and advises the local school board as to whether prospects of success appear good. In this policy is marked a

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wholesome change from the earlier attitude of "promoting" agricultural education by placing schools wherever communities could be induced to accept them. Since the tendency is to measure the success of the division in terms of the number of schools established rather than in terms of appropriateness and serviceability of such schools, the later policy is evidence not of foresight in permanent "promotion" only, but of courage also.

"If after a survey has been made it seems expedient to establish a department of agriculture, the question must be submitted to an annual or special district meeting." The resolution must be voted on by ballot or by count and record of ayes and noes.

"The minimum requirements to be met by local authorities desiring State and Federal aid on account of the establishment and maintenance of a high school department of vocational agriculture are as follows:

"1. All departments and classes must be under public supervision and control.

"2. In the work of a department of agriculture provision must be made for at least *six months* of directed or supervised practice in agriculture.

"3. Pupils should be trained for the vocation of farming with special emphasis on those types of farming which are dominant in the community.

"4. The *two* rooms used for agricultural instruction must be adequate to insure the accomplishment of reasonable standards of work and to carry out the purposes for which the course was established.

"5. The agricultural library should contain such books, bulletins and periodicals as are necessary for efficient study and instruction in the subjects to be taught.

"6. Provision should be made for such professional improvement of the teacher of agriculture as may be designated by the Commissioner of Education.

"7. Provision must be made in each department of agriculture for the minimum equipment listed (by the division).

"8. A department of agriculture must have an enrolment of at least *twelve* pupils throughout the year. The Commissioner of

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Education, however, may in his discretion approve of a department of agriculture with an enrolment of less than twelve pupils when the local school authorities submit evidence showing that such condition is temporary in character.

"9. Provision must be made for such expenses of travel of the teacher of agriculture as are necessary properly to supervise the project activities of the pupils registered in the agricultural course. At least fifty dollars must be set aside by the board of education to meet this requirement.

"10. The time of the teacher of agriculture must be devoted exclusively to the teaching of vocational pupils except in special cases and then only after consultation with and the approval of the Commissioner of Education.

"11. A department of agriculture is required to maintain an organization and courses of study which meet the approval of the Commissioner of Education.

"12. The local school authorities are required to make adequate provision for the filing of all official records of the department of agriculture."

QUALIFICATIONS OF TEACHERS.—Teachers of agriculture must have "a special authorizing certificate. In order to receive such a certificate teachers must show evidence of graduation from a four year high school course or the equivalent, and also from a four year agricultural college in which an approved course has been pursued. Such a course must provide that at least 10 percent of the college credit hours be obtained from educational and professional subjects. In general, these subjects include educational psychology, principles of teaching, special methods, and observation and practice teaching."

A teacher so certified may be disapproved for reappointment if his teaching be found inefficient by the supervisory specialists of the division.

"Specifically a teacher of agriculture should:

"1. Be thoroughly conversant with farm life, either from his home life or extended experience working on a farm.

"2. Have good general knowledge of the entire field of agricultural subjects, including animal husbandry, dairy husbandry,

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poultry husbandry, soils, farm crops, vegetable gardening, fruit growing, plant diseases, entomology, farm management and farm machinery. In addition he should have specialized in some phase of technical agriculture.

"3. Have knowledge of the science and art of teaching. A thorough knowledge of agriculture may be of little use unless the teacher also has knowledge of how to direct the activities of pupils.

"4. Understand the intent of vocational agriculture, be familiar with the farm home and understand the problem of connecting the school work and the home activities of pupils.

"5. Possess skill in the use of woodworking tools and have knowledge of mechanical drawing."

Evidence in greater or less detail in amount and accuracy is offered throughout the study to show in how far those requirements are being met, with some discussion of their efficiency and utility. Recommendations with respect to policy and enforcement are briefly summarized at the close of the report.

"CURRICULUMS.—In the preparation of curriculums for a high school department of agriculture two types should be recognized: (1) a four-year curriculum and (2) a curriculum of less than four years."

"*Four-year curriculum.* A four-year curriculum is organized to meet the needs of a group of pupils regularly enrolled in the academic department and leads to an academic diploma in vocational subjects. This diploma will be issued to pupils in recognized high schools who earn at least 72 counts, who meet the regular requirements for an academic diploma as follows: English 16 counts, science 10 counts, mathematics 10 counts, history 10 counts, and obtain at least 25 counts for the successful completion of approved courses in vocational subjects. The diploma will admit the pupil to the New York State College of Agriculture at Cornell University and to the College of Agriculture at Syracuse University.

"It is expected that there will be kept on file in each department of agriculture a statement of the curriculum leading to the academic diploma in vocational subjects. After approval this curriculum should not be changed without consulting with the Director of the Division of Agricultural and Industrial Education. The following

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suggestions will assist school officers in the preparation of a curriculum:

Subject	Place in curriculum	Periods a week
English		
First year	First year	4
Second year	Second year	4
Third year	Third year	4
Fourth year	Fourth year	4
Mathematics		
Algebra	First or second year	5
Geometry	Second or third year	5
Industrial arithmetic	Elective	2½
Science		
Biology	First year	5
Physics or chemistry	Third year	5
Physics or chemistry (not chosen in third year)	Elective	5
History and economics		
Community civics [1]	Second year	2½
Economics or	Third year	2½
History (course B)	Third year	5
U. S. History with civics	Fourth year	5
Agriculture		
First year	First year	10
Second year	Second year	10
Third year	Third year	10
Fourth year	Fourth year	10

[1] The course in community civics published and recommended by the National Bureau of Education (Bul. 650, 1915, No. 23) will be, for the present, approved by the Department.

"The organization of a four-year curriculum calls for a *double period* each day for agriculture and is based on the assumption that the home project is an integral part of the work for each of the four years; credit for the work each year is given only after the completion of the projects. Regents credit of 7½ counts for each year's work in agriculture is given. The final statement of home projects, on blanks provided for this purpose, must be approved by the Division of Agricultural and Industrial Education before Regents credit can be granted.

"It is recommended that first and second year agriculture precede third and fourth year agriculture in the case of pupils pursuing the four-year curriculum. In order that the teacher may teach the four years of agriculture it will be necessary to alternate at least two years of work. If the entering class is large each year it is well to

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teach first and second year agriculture and alternate third and fourth year.

"*Curriculum of less than four years.* In several sections of the State the agriculture is so specialized that a curriculum of less than four years will adequately meet the vocational needs of the pupils. In such districts school officers administering the department of agriculture should prepare a two-year or a three-year curriculum designed to emphasize training in a specialized field, such as grape growing, truck farming, etc.

"In some high schools the enrolment of boys is so small that a four-year curriculum is not warranted. In such schools a two-year or three-year curriculum may well be organized. Pupils desiring to receive intensive instruction in agriculture during any one year should be permitted to pursue two years of agricultural work (in one).

"SUGGESTED ARRANGEMENT OF SCHEDULE OF CLASSES.—To make the teaching effective ample time should be provided for field study. This study requires extended trips to the homes of the pupils and the farms of the community to study practices, crops, soils, animals, etc. It is suggested that the schedule of classes be so arranged that the withdrawal of pupils from school will not interfere with the class work of the other subjects. Also if the pupil is to conduct his project properly it frequently becomes necessary for him at critical stages in its progress to give more time than is permitted if he spends the entire time of each day attending school. This again requires an adjustment of the schedule of classes to provide for half day periods which may be devoted to agricultural instruction.

"This does not mean that the entire time of every half day is given over to agricultural instruction, but rather that the arrangement of the schedule of classes will permit of such a program when the efficiency of the instruction requires it. The following are the salient features of the plan:

"1. It will be necessary to alternate at least two years of work if the four years of agriculture are to be given by one teacher.

"2. At least six months of supervised practice in agriculture is required for the completion of each year's work. In fulfilling this

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requirement it is suggested that provision be made for pupils to carry on a portion of this practice in half day periods during the regular session of the school.

"3. The time spent in supervised practice will be credited toward school attendance on the proper certification of the school authorities.

"4. On those days when field or practice work is not required the pupils will devote a double period to agriculture. The remaining periods in the half day may be devoted to the preparation of other school work."

"THE COURSES OF STUDY AND TEACHING PLANS.—The class and laboratory instruction in a department of agriculture is based upon the practical experience gained on the home farm and at the project. In New York State there is a wide variation in the types of farming. On account of these facts it is impractical to prepare courses of study for the various agricultural subjects that are adapted to all conditions. It is highly desirable, however, to organize the content of the various years' work in agriculture so as to include the important phases of agricultural production. The subjects indicated below are suggested for the four-year curriculum. School officers desiring to include additional subjects or to rearrange those mentioned below should secure the approval of the Director of the Division of Vocational and Extension Education.

"First year agriculture
- Farm shop work
- Poultry husbandry
- Home gardening (if not given in second year)

Second year agriculture
- Farm crops
- Soils and fertilizers
- Home gardening

Third year agriculture
- Animal husbandry
- Fruit growing
- Dairying

Fourth year agriculture
- Farm management and economics
- Farm engineering and machinery"

"THE HOME PROJECT.—The participation by all pupils in supervised agricultural practice is an essential part of vocational agricultural instruction. This training in the practice of farming is accomplished by a home project which may be defined as a farming enterprise which is studied and planned at school under direction and carried into operation on the home farm or other farm where satis-

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factory arrangements are made under the supervision of the teacher of agriculture. It is not a series of problems relating to agriculture but is rather a definite piece of work in the conducting of which ownership, correct business methods, managerial ability, economic profit and study are emphasized. An approved home project is necessary to the completion of each year's work in agriculture.

"In making preparation for and in conducting home project work with vocational pupils, teachers should give attention to the following general requirements:

"1. The home project must be conducted over a period at least six months. This does not mean that six months is a sufficient amount of time in which to complete all projects. Animal and poultry projects, for example, should be continued for at least one year, and a strawberry or an orchard project should be continued for at least two years.

"2. The major project must be chosen from the field of agricultural production studied that year.

"3. The project should be chosen at the earliest possible date in the course of instruction. In fact, with the exception of those in the entering class, pupils should choose their projects before the opening of school in the fall. The 'Preliminary Statement of Home Projects' must be on file in duplicate in this division on or before November 1st.

"In cases where it seems advisable to change the project after the preliminary statement has been approved, a record of such change should be forwarded in duplicate to this division. In every case this record should be accompanied by definite reasons for the change.

"Teachers should exercise great care in assisting pupils in the choice of their projects so that changes other than those warranted by study and investigation will not be necessary. Special attention should be given to the visitation of parents and the bringing about of a complete understanding on the part of all concerned in the problems and ultimate success of the project work.

"4. Project study should start immediately after the enrolment of pupils in the agricultural class and should furnish the basis for the agricultural instruction in any given subject. The organiza-

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tion of the subject matter in the yearly teaching plan should coördinate very closely with the problems and questions which the pupils are likely to encounter in conducting their individual projects: This is readily accomplished inasmuch as the subject matter and the activities of the project are each organized and conducted in accordance with the seasonal sequence of farming operations.

"5. The complete project plan, records, accounts and summary must be kept on file in the school. Pupils should be required to show evidence why the various phases of the work as planned have not been carried into effect if such a condition obtains.

"6. Project supervision should consist in continued instruction of individual pupils at the scene of their work and should be so conducted that definite problems may be left with the pupil at the close of each visit, together with suggestions or directions to be followed up by subsequent visits.

"7. The 'Final Statement of Home Projects' should be on file in this division on or before May 1st of the year following the year in which the work was begun.

"LABORATORY AND RECITATION ROOM AND THE FARM SHOP.—The rooms and equipment provided for a department of agriculture should be as modern and convenient as for any other department in the school. Rooms are not to be used for this work unless they are well heated, lighted, ventilated and sanitary. Provision should be made for two rooms: laboratory and recitation room and the farm shop.

"The laboratory and recitation room and its equipment furnishes a means for demonstrating various phases of agriculture and affords an opportunity for securing individual experience. One large room properly equipped to serve as a combination laboratory and recitation room has been found most satisfactory. The agricultural room should be near the ground with easy access to the outside of the building so that classes may readily pass in and out without disturbing others in the buildings.

"The purpose of the farm shop and its equipment is to furnish a means for instructing pupils how to do the repair and construction work which ordinarily needs to be done on the farm. Consideration should be had for (*a*) the fundamental tool operations, (*b*) care

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and sharpening of tools, (*c*) construction practice definitely related to the project work of the pupils. During those years when shop work is not definitely scheduled as a part of the course of study the shop should be open and in running order and pupils should receive instruction in special phases of shop work which develop as a result of their project study and class work.

"Under average conditions a room for shop work can be provided. It should be at least 16 by 24 feet in area, well lighted and preferably with a southern exposure. Rooms not already suitable for the purpose may often be made so at small expense. If absolutely necessary, a basement room may be fitted up. In this case additional windows will frequently be needed.

"The shop should be provided with portable benches. The benches should be placed so as fully to utilize the floor space for handling lumber and work with the saw horses. It is suggested that provision be made in each shop for a bench with both a wood and a metal working vise such as might well be used on the farm. A lumber rack, usually built by the agricultural class, is an essential part of the farm shop equipment. Experience indicates that the best arrangement for the tools is to provide one or two wall cabinets approximately 6 by 4 feet and 10 to 12 inches deep. A grindstone or a foot power, high speed carborundum grinder should be provided.

"EQUIPMENT.—In the selection and purchase of equipment for a department of agriculture consideration should be had for the following:

"1. If the department of agriculture is to qualify for State and Federal aid provision must be made for the minimum list of equipment. It is not expected that the total amount of equipment in any given department of agriculture will be limited to this list, but rather that minimum requirements shall be considered as the least amount with which effective teaching can be done. Teachers of agriculture should give special attention to additional equipment to meet the instructional needs of special phases of agriculture dominant in the community.

"2. At the opening of a department of agriculture and at the beginning of each year thereafter a list of needed materials and apparatus should be prepared by the teacher of agriculture. In

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the preparation of this list attention should be given to (*a*) the kind and amount of materials and apparatus, (*b*) where these may be purchased, and (*c*) the approximate cost. On receipt of this list the board of education should appropriate the necessary funds.

"3. Much valuable material for class and laboratory instruction may be collected by the teacher of agriculture from the community. This collection should be made in accordance with a carefully prepared plan of what is needed rather than to attempt to rely on gathering this material whenever it may be seen in the field. All materials should be preserved or mounted and labelled and neatly arranged in the laboratory cases.

"4. A considerable amount of laboratory apparatus may be constructed in the farm shop. Care, however, should be exercised in doing this work in the shop because if no educational aim is to be served and there is no great financial saving to be realized the apparatus might better be purchased on the open market.

"5. Inasmuch as provision is made for the alternation of at least two years of work, the entire cost of equipment may be distributed over two years.

"6. An inventory of all apparatus should be kept on file at the school. At the beginning of each year blanks will be furnished by the Division of Agricultural and Industrial Education on which the school will be expected to report equipment added during the previous year."

"MINIMUM EQUIPMENT FOR HIGH SCHOOL DEPARTMENTS OF VOCATIONAL AGRICULTURE.—

FIRST YEAR AGRICULTURE

Amt.	Item
1	1½" brad awl
1	Set bits ¼", 5/16", ⅜", 7/16", ½", 9/16", ¾", ⅞", 1"
1	Countersink, rose
2	Screw driver bits, ⅜" tip and 5/16" tip
2	Bit brace, 8" sweep
12	Chisel, socket, firmer, two ¼", one ⅜", four ½", one 9/16", three ⅞", and one 1"
4	Dividers, 8", loose leg, wing
1	Set twist drills 1/16–⅜ by 32ds, square shank
1	File, mill cut, 6"
1	File, mill cut, 10"
6	File, slim taper, triangular, 6"
2	File, slim taper, 5"

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Amt.	Item
1	File, auger bit
1	File card (cleaner)
6	Gauge, marking, plain
1	Glass cutter, turret head
1	Grindstone, 2″ x 24″, ball bearing mounted with foot pedal
1[1]	Carpenter's hammer, equal number, bell face, adze eye, curved claw; and plain face, straight claw
1	Drawing knife, 8″
1	Level and plumb, wood 26″
1	Level and sights
1	Mallet (or more if shop made)
3	Nail set (assorted)
1	Oiler
1	12″ half round wood file
4	Wood screw (adjustable) two 8″, two 12″
2	4 foot steel bar carpenter's clamps
1	Oilstone, coarse and fine face carborundum
1[1]	Plane, jack, 14″ iron, 2″ cutter
3	Pliers (assorted)
1	Punch, center
1	Putty knife
2	Saw, cross cut 22″, 10 point
3	Saw, cross cut, 24″, 10 point
1	Saw, cross cut, 26″, 8 point
2	Saws, rip, 26″, 5 point
1	Saw, compass, 16″
2	Saw, coping, metal handle
1	Saw, hack, 10″, with one doz. blades
1	Saw set
1	Saw vise (shop made)
3	Screw drivers, 4″, 8″, and 10″
3	Sliding T-bevels two 6″, one 8″
2	Square, steel, 16″ or 18″ x 24″, polished
1	Square, mitre (blade fixed at angle of 45°)
1[1]	Square, try, 8″ or 9″ tongue
1	Tape in case, 100 feet
	1″ iron bench screw for home made bench vise (1 for each vise needed)
1	Blacksmith's vise, 3½″ jaw
1[1]	Bench stop (shop made)
1	10″ monkey wrench
1[1]	Two-foot rule, four fold
1[1]	Bench hook (shop made)

Blacksmith's Tools

6	Cold chisels (assorted sizes, ⅜″ to ⅝″)
1	Set drills ⅛″ to ½″ by 16ths with square shank to fit bit stock
1	Hammer, riveting 10 ounces
1	Punch, center
1	Set, stock, dies and taps 3/16″–26 threads, ¼″–26, 5/16″–20, 7/16″–16, ½″–16 for threading bolts and nuts
1	Breast drill or other geared drill

(Installation of the following items included under blacksmithing is optional with boards of education)

[1] One for each pupil in average size class.

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Amt.	Item
1	Anvil, 80 or 100 pounds steel with hardened face
1	Hardie to fit anvil
1	Forge, portable with hood and tub
1	Hammer, blacksmith's 2 pound
1	Hammer, ball pein 24 ounces
1	Tongs, 18″ length straight lip, ¼″ opening
1	Tongs, bolt, ⅜″–½″ opening
1	Tongs, fluted jaw, for ¼″ to ⅝″ iron
	Pipe Fitting (optional)
1	Cutter, 3 wheel, cutting ¼″–2″
1	Stock and dies, Armstrong type, cutting ¼″, ½″, ¾″ 1″, 1¼″, 1½″ and 2″ for threading pipe
1	Pipe vise, capacity ½″–2″
1	Wrench, 18″ Stillson pattern, iron handle
1	Wrench, 12″ Stillson pattern, iron handle
	Tinning
1	Soldering scraper
1	Blow torch
2	Copper, two pounds
1	Snips, 3½″ cut
1	Bar solder, half and half
	Muriatic acid and zinc
	Sal ammoniac
	Harness Repair
6	Sewing awl, assorted
2	Awl haft
1	Knife, harness-maker's straight
1	Punch, revolving 6 tube
1	Sewing horse made in shop
1[1]	Black shoemaker's wax
1	Paper needles, No. 7
1	Ball harness thread, No. 10 white
1	Box 50 assorted split rivets
1	Cake black harness soap
1	Quart can harness dressing
1	Riveting machine
4	Boxes assorted tubular harness rivets
	Drawing
1[1]	Board, 14″ x 20″
	Drawing paper, sizes 8″ x 10½″ and 12″ x 18″
1[1]	Wooden T-square, 22″
1[1]	8″ 45 degree angle triangle
1[1]	8″ 30 and 60 degree triangle
1[1]	Triangular boxwood scale 3/32″, ⅛″, 3/16″, ¼″, ⅜″, ½″, ¾″, 1″, 1½″, 3″ and full scale in 1/16″ divisions
1[1]	25 cent compass
1[1]	4 H. pencil
1[1]	Lead eraser
	Thumb tacks

[1] One for each pupil in average size class.

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Poultry Equipment

Amt.	Item
1	Incubator (2, 3) [1]
2	Sticking knives (1, 2)
	Collection poultry feeds in glass
	Jars for exhibit (2, 3)
	Supply of poultry feeds for laboratory work
	Sample cartons (3)
1	Catching hook (1)
1	Butcher knife (2)
	Show crates (1)
	Carrying crates (1)
1	Egg scales (1)
1	Small hand sprayer (2, 3)
1	30 pound milk scales (for use also in third year agriculture) (2)
	Insecticides and disinfectants (2, 3)
	Waterglass (2)
	Other temporary equipment made in shop for exhibition or project use
	Oat sprouter (1)
	Feed hoppers (different types) (1)
	Watering devices and stands (1)

SECOND YEAR AGRICULTURE

1	Soil auger (1, 2)
1	Round-pointed shovel (2)
1	Sieve for screening soils (1, 2)
1	Soil thermometer (2)
1	Collection of fertilizer samples and lime (2, 3)
2	Sheet celluloid 24″ x 36″ for capillary tubes (2)
3	Mulch cylinder (1, 2)
1	Set soil bins (1)
1	Root study case (1)
3	Germination trays (1)
1	Platform spring scales ("Family type") (2)
1 [2]	Tripod lens (2)
1	Collection threshed grains (3)
1	Collection weed seeds in vials (2, 3)
1	Collection grass seed and other farm seeds in vials (3)
1	Collection grasses and grains (whole plant) (3)
1	Set dry measures, including 2 quart, peck, half bushel and bushel

THIRD YEAR AGRICULTURE

1	Brass or brass-lined sprayer (2)
1	Babcock milk tester (2)
1	Dozen pipettes (2)
1	Burette (2)
1	Dozen whole milk bottles (2)
½	Dozen cream bottles (2)
½	Dozen skim milk bottles (2)
½	Dozen acid measures (2)
1	Quevenne lactometer (2)
2	Dairy thermometer (2)

[1] One for each pupil in average size class.

[2] Source (1) shopmade, (2) purchased, (3) gratis.

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Amt.	Item
1 [1]	Milk bottle holder (1)
4	Test bottle brushes (2)
1	Collection of feeds (3)
4	Budding knives (2)
2	Grafting chisel (1, 2)
4	Pruning shears, hand (2)
4	Pruning saws (2)
½	Pound raffia (2, 3)
1	Cylinder for hydrometer (2)
1	Measuring standard for horses (1, 2)
1	Sediment tester, simple inexpensive type (2)
1	Collection of fruit diseases and insect pests (3)
1	Long handled lopping shears (2)

Fourth Year Agriculture

2	Trowel for cement work (2)
	Catalogues of farm machinery (3)
1	Plane table, 18″ x 24″ (1)
1	Level (included in 1st-year list)
1	Measuring tape, 100 ft. (included in 1st year list)

Miscellaneous

1	Gross ounce vials (2)
4	Dozen 8-ounce wide mouth bottles with corks (2)
4	Dozen easy-seal pint jars, clear class (2)
2	Dozen easy-seal quart jars, clear glass (2)
1	Dozen tumblers (2)
1	Dozen test tubes assorted (2)
1	Dozen flower pots, 6″ (2)
1	Dozen pie tins (2)
3	Dozen paper pie plates (2)
½	Dozen 8″ x 2″ straight glass chimneys (2)
3	Funnel (2)
1	Dozen 5′ linen tapes and 1′ rulers (2, 3)
1	Measuring cup in ounces (2)
2	Graduate in 100 c.c. (2)
1	Graduate in 250 c.c. (2)
1	Oil or gas stove, with oven (2)
1	Rubber stamping outfit for charts (2)
1	Duplicator (1, 2)
1	Pair shears (2)
2	Large dish pan (2)
3	Wooden, 3 to 5 gallon pail, tub, or container (2, 3)
	Support racks for use in setting up apparatus (1)
6	Feet rubber tubing (2)
5	Yds. cheese cloth (2)
	Corks, assorted (2)
2	Cake, paraffin (2)
	Gummed labels (2)
1	Package filter paper (2)
	Litmus paper (2)

[1] One for each pupil in average size class.

[2] Source (1) shopmade, (2) purchased, (3) gratis.

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Item
Sulphuric acid for milk testing (2)
Commercial spray compounds (3)
Lime (2)
Sulphur (2)
Chemicals in amounts needed for laboratory demonstrations (2)
Copper sulfate (2)
Formalin (2)
Farrington's alkali tablets (2)
Corrosive sublimate tablets, colored (2)
Washing compound (2)
Arsenate of lead and other insecticides (2)
Tallow, beeswax and rosin for grafting wax (2)
Potassium permanganate (2)

"THE AGRICULTURAL LIBRARY. . . . In building up such a library attention should be given to (*a*) reference books, (*b*) agricultural bulletins and reports, and (*c*) periodicals.

"In selecting reference books for the agricultural library care should be taken to see that the library, as a whole, is well balanced. Several of the best books on each of the important groups of subjects should be included. This is better than to select a library that is especially strong in some particular field. In providing for major groups of subjects, however, attention should be given to those phases of agriculture dominant in the community. For example, in a dairying region more attention would be given to the purchase of books on dairy husbandry than in a fruit-growing region. Experience indicates that the practice of purchasing more than one copy of a book on a particular subject that is of special importance locally is a desirable one. For example, in regions where cabbage or potato growing are specialties, from three to five copies of the books dealing with these special crops might well be placed in the library. All reference books should be listed in the school accession book at the time of purchase. At the beginning of each year proper forms will be forwarded by the Division of Agricultural and Industrial Education to schools of agriculture. It is expected that all books purchased during the previous year will be reported to the division on these forms.

"Teachers of agriculture should give attention to the collection of bulletin publications from the United States Department of Agriculture and the various state colleges, experiment stations and

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state departments of agriculture. These bulletins should (1) be chosen with the end in view of selecting those essential to the needs of the pupils rather than attempting to assemble a large number, many of which will never be used, (2) be made a part of the school library rather than the personal property of the teacher, (3) be filed and cataloged in some simple and practical way which will permit of ease in securing information and at the same time be easy to keep in order.

"Boards of Education should make provision for subscription by the school to several periodicals. These should be carefully selected with a view to meeting the agricultural needs of the community.

"SUMMER WORK OF THE TEACHER OF AGRICULTURE.—It is an essential part of the organization of the school that the teacher of agriculture be employed for service during the summer months. It is necessary for the board of education or trustees to determine the educational services to be rendered by this teacher during the time the school is not open (the summer vacation). This plan is to be submitted to the Division of Agricultural and Industrial Education. The following suggestions will be of assistance to boards of education in planning this work:

"1. The school year should begin August 1st rather than in September or July. This will give a new teacher an opportunity to get acquainted with the agriculture of the section and to formulate the course of study and teaching plan.

"2. The following are some phases of summer work suggested for the teacher of agriculture: (*a*) supervision of senior and junior projects, (*b*) collecting materials for classroom and laboratory use the following year, (*c*) locating objective points and making arrangements for field trips to be taken the following year, (*d*) studying the agricultural practices of the region by means of surveys and personal conferences, (*e*) investigating the need and making preliminary arrangements for short unit and evening courses, (*f*) coöperating with organized agricultural agencies in conducting work in the community that is of mutual benefit to such agencies and to the department of agriculture, (*g*) attending to the school plot.

"GROUPS OF PUPILS TO BE REACHED BY A DEPARTMENT.—In the organization of a high school department of vocational agriculture

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consideration should be had for at least three groups of pupils. These are:

"1. Pupils regularly enrolled in the high school who pursue the agricultural curriculum leading to an academic diploma in vocational subjects.

"2. Boys and young men who have left school without completing the elementary or high school courses and who may be interested in receiving definite instruction in the vocation of farming. This group may be admitted to the regular agricultural classes and may elect such academic subjects as they may desire, or they may be enrolled in special classes organized during the winter months when the farm work is slack. This instruction should be designed to meet the special needs of the group and should focus on a farm project which each pupil should undertake and conduct for a period of at least six months under the supervision of the teacher of agriculture.

"3. Adults living and working on farms desiring instruction in specialized phases of their work. The needs of this group may well be met by the organization of short unit day or evening classes, the frequency of which will be determined in a large measure by the members of the class. The instruction should be organized with a farm enterprise in a special field of production as the basis of discussion. Whereas the teacher of agriculture will have general direction of the work, his efforts will be supplemented by special lectures or demonstrations given by persons of the community who have done successful work in the field under discussion or by specialists from the College of Agriculture and Experiment Station or by county farm bureau agents.

"Duplication of Money for Apparatus and Utensils.—Money expended for books and apparatus including tools and utensils to be used in the vocational departments of high schools, will be duplicated from the academic fund in the same way as expenditures for physical and chemical apparatus. No duplication will be made for money expended for unbound periodicals, series, or sets of books by different authors, textbooks, furniture, fixtures, benches, machinery, chemicals or supplies consumed in using.

"Teacher of Agriculture as Principal.—In case a qualified

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teacher of agriculture is serving as principal, he may be considered as the first teacher of agriculture under the condition that (*a*) all his teaching is of vocational subjects, (*b*) an assistant principal is provided. This arrangement should not be made without consulting the division, as it is sometimes difficult to maintain a satisfactory organization when the teacher of agriculture acts as principal.

"TIME OF RECEIVING APPORTIONMENTS.—The apportionments for vocational schools are based upon the annual financial report rendered at the close of the school year. The apportionments from State funds are paid with the district and teachers quotas in March and May following the close of the school year. The apportionments from Federal funds are paid on or before September 1st of each year.

"SCHOOL RECORDS.—The following records should be kept on file at the school subject to inspection:

"1. Register of pupils in all agricultural classes.
"2. Teacher's class book.
"3. Copy of all examination questions.
"4. Diary of summer work.
"5. Inventory of library books and equipment.
"6. Complete records of each pupil's project. These records should include (*a*) project plans, (*b*) financial and labor records and (*c*) a project summary. Attention is called to the form on the title page of the final statement of home projects which reads 'There is on file in this school a detailed record of each project.'
"7. Permanent record of all vocational pupils."

"The following is a list of reports to be made to the Division of Agricultural and Industrial Education by each teacher of agriculture with approximate dates of transmissal:

"September 15.—Courses of study and teaching plans.
"November 1.—Preliminary statement of home projects.
"May 1.—Final statement of home projects for the previous year.
"June 1.—Claims for academic credit for subjects studied during the previous year. These claims are to be made after the final statement of home projects has been approved."

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Organization of the High School Department of Homemaking

Regulations and Policy.—The more important features of the organization of homemaking courses under State aid are described in the following excerpts from the bulletin of November, 1919:

"The local home needs should always be taken into consideration in the organization and conduct of a homemaking department. To this end a study of local conditions may well be made before such a course is planned. This study will include the home attitude toward and local activities connected with homemaking education, the factors existing in the school system, and the probable vocations of its young women. In practically all communities there will be groups of young women whose immediate vocation after leaving school will be that of keeping a home."

Though the general policy of the division in respect to the making of a careful adaptation by the school to the needs of its own community is here plainly expressed, yet there is at present no such provision for preliminary study as has been inaugurated in the case of agriculture. The tendency to follow the syllabus rather closely is to be noted, and the conspicuous lack of systematic community study. Since the publication of the syllabus guide, too, the submitting of a proposed plan of course at the beginning of every year by the teacher seems to have gone into abeyance. At any rate no such plans of 1920–21 for the rural high schools were on file in the offices of the division in May, 1921.

"The homemaking school shall be organized as a separate course or department with the groups of young women segregated for their homemaking subjects. While pupils registered as members of the homemaking department may take academic subjects with the regular high school classes, it is not lawful for pupils other than regularly registered members of a homemaking department to be instructed in any of the homemaking classes for which State aid is to be claimed.

"The first teacher of homemaking in a state-aided school may not teach any other classes than the state-aided classes. She may, however, have general supervision of all home economics work in the school system in order that a continuity of purpose may be

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preserved. The second teacher of homemaking in state-aided schools may devote part of her time to the teaching of elementary or other non-state-aided household arts classes with the understanding that the amount of State aid to be given shall be prorated on the basis of the amount of salary paid for teaching students in the homemaking department exclusively."

Apparently the first provision here is not being lived up to in the spirit.[1] It may be that such pupils as are really electing the various subjects in the homemaking course are duly and properly registered, but so long as they may leave the course at the end of any year with credit for work done there is no interference with actual election on the subject basis. In regard to the second provision it will be noted in the report on observation of teaching that sole teachers of homemaking are engaged in teaching homemaking classes of pupils in the upper elementary school grades.

"MINIMUM ENROLMENT.—A homemaking school may be organized if twelve pupils are enrolled in the department. The maximum number of pupils in a homemaking class shall be twenty-four and no class of less than six pupils shall be conducted unless it is an advanced class in a third or fourth year subject. This regulation permits of the maintenance only of suitable sized classes in which the maximum of interest and inspiration may be sustained.

"SCHEDULE.—Each pupil in the homemaking department shall devote one double period (90 minutes) a day to homemaking subjects as outlined under the 'Courses of Study' and shall devote the equivalent of one 45 minute period a day to the planning and execu-

[1] In this and other cases where there appears to be deficiency in the matter of administrative control it may be well to bear in mind not only the overloading of the supervisory officers elsewhere referred to, but also the frequent changes in the supervisory positions, the considerable lapses wherein no supervisory officer was in control, and the relatively brief terms of recent supervisors. That under such conditions enforcement of requirements has not been close is not strange. Indeed it is rather remarkable that a fairly clear and consistent policy is to be found in the administrative aspect of the homemaking program. Since the beginning there have been five supervisors. There has been one period of nearly two years and another of nearly a year in which no supervisor was in office. The difficulty in finding qualified supervisors has been such that filling a place made vacant by resignation or death has necessitated lapses. Since 1917 the longest term served by a supervisor has been less than two years. To grasp, much less to solve, all the problems of administration in a state like New York is hardly possible to the most capable of women in so short a period.

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tion of a supervised home project in accordance with the regulations outlined under Required Home Projects. In communities where correlation with the home is impractical the home project requirement may be met by adding one period a day to the class time of 90 minutes already required, making a period of 135 minutes per day.

"Each year's work in homemaking subjects shall be accredited 7½ Regents counts. The total number of Regents counts which may be obtained for the four years of work in homemaking is 30, but 42 additional counts in academic subjects must be earned by students desiring an academic diploma.

"The academic program may be planned according to the schedule advised. The required subjects are English, science and history. Pupils may elect, under guidance, from the general high school academic curriculum the remaining academic counts."

Although the actual attendance in classes observed does occasionally run below the requirement set, there is no certain evidence that the requirement is not being met. Except for the splitting of periods the 90 minutes' schedule appears to be followed. Record of the actual time devoted to "projects" and of the nature and scope of projects was not obtained.

"ADVISORY BOARD.—The law provides for the appointment by a board of education of an advisory board of five members to counsel with and advise school authorities in regard to the establishment and maintenance of vocational schools. Women, experienced and talented in homemaking, should be chosen to serve as members of such advisory boards. Such a board should be helpful in the selecting of equipment and in the determining of the efficiency of the instruction given."

During the first year of operation of the advisory board requirement, schools have failed to meet it in very large measure, less than one school in three having such a board appointed in May, 1921, and less than one in four having such a board in action.

"It is recommended that no homemaking teacher be required to devote more than three double periods (four and one-half clock hours) to actual class instruction each day, subject to the following special limitations:

"1. The luncheon hour is not to be considered as class instruction

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time. A teacher of homemaking who has supervision of a lunch room during the luncheon hour is to be given free time during the teaching day to the equivalent of the noon session of the school.

"2. A teacher of homemaking, who is also the home coördinator having supervision of the home projects, shall be released from teaching for the corresponding number of hours that she must devote after school or on Saturdays to such home supervision, which necessarily must be done outside of the regular school day.

"3. The time of the first homemaking teacher is to be devoted *exclusively* to the teaching or supervision of homemaking subjects in the homemaking school. This precludes the supervision of a general study hall and the teaching of other than homemaking pupils. She may, however, have general supervision of all home economics work in the school system."

In spite of the recommendation in regard to teachers' schedules it appears that some teachers are distinctly overloaded during school hours.

"ROOMS.—The housing of the homemaking classes shall be in the high school building or a suitable building or rooms within an easy distance that shall not detract from the inspiration or interest in the work.

"It is recommended that all rooms to be used for homemaking subjects be above ground level and that no room be of such a character that artificial lighting would be necessary or where proper ventilation and heating would not be possible."

In spite of the recommendation given above the use of basement rooms is not uncommon. With the extraordinary shortage of room in high schools, such as compels the holding of classes on stair landings and in all sorts of unfavorable places the fact is not surprising. It appears that there is no marked tendency to relegate homemaking to the poorest rooms.

"EQUIPMENT.—The equipment must be suitable and sufficient for the work of the course and the laboratories should afford opportunities for practical experience in the different activities. Such equipment will include blackboards, charts, reference books and working apparatus.

"The teaching of the different phases of foods would require as

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a minimum equipment facilities for preparing and serving foods in family quantities as nearly under home conditions as is possible. It is recommended that wherever practical the science equipment of the high school be used both by the teacher of science and the teacher of homemaking. This arrangement will help to secure a maximum of efficiency at a minimum of equipment expense.

"In schools where the noon luncheon is prepared and served under the supervision of the homemaking teacher the equipment for this preparation and serving should be of a character to prevent loss of time, labor and energy on the part of pupils and teacher.

"The equipment for the teaching of the different phases of clothing should include a sufficient number of machines and good small equipment to provide for a high type of construction work. The equipment for teaching the science of clothing should include adequate laundering, cleaning and dyeing facilities.

"All rooms and equipment of the homemaking classes should be considered part of the equipment for the housekeeping phase of home management. It is recommended, however, that there be provided facilities for real housekeeping in a furnished school apartment, a practice house or local community rooms.

"Coöperation with the school nurse in the use of nursing equipment is recommended for the teacher of home nursing."

Conspicuous lack of equipment, particularly in subjects other than cooking and clothing is to be found.

"Qualifications of Teachers.—The success of the homemaking department is for the most part predetermined by the qualifications of the teacher and the selection should be made with great care. The first teacher should be able to obtain and to hold the confidence of the pupils and of the community, should have poise, character and a pleasing personality. Since two-thirds of the salary of the first teacher of homemaking will be paid by the State, the community can afford to secure a teacher of experience and to pay a salary high enough to employ a person well fitted to serve the local needs.

"The following are the required qualifications for a teacher of homemaking in the high school:

"1. After September, 1920, no instructor will be eligible for

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appointment as a teacher of homemaking in a state-aided department who has not completed a four-year course in home economics beyond the high school in an institution whose teacher-training course shall have been approved by the Commissioner of Education.

"In addition, the teacher of homemaking shall have had practical experience in managing a home and shall have had actual experience in some commercial field related to the home activities.

"2. A candidate who is a graduate of an approved four-year course but who is lacking in homemaking experience, or in experience in a commercial field, may be granted a temporary license pending the completion of such homemaking and commercial experiences."

Two teachers of five at present fail to meet the requirements set for September, 1920, though 8 in 11 are newly appointed with 1920–21.

"SUGGESTED CURRICULUM FOR A HIGH SCHOOL COURSE IN HOMEMAKING

Homemaking subjects	Regents counts	Academic subjects	Regents counts
Ninth year			
1 Elementary foods (½)	..	English	4
2 Elementary clothing and design (½)	7½	Science (biology)	5
		Art	4
Tenth year			
3 Lunch room and special cookery (½)	7½	English	4
		Science (chemistry)	5
4 Dressmaking and millinery	..	American history and civics	5
Eleventh year			
5 House planning and decoration (½)	..	English	4
		Mathematics: algebra or geometry	5
6a Household science—10 weeks	7½	Electives: science (physics)	..
Twelfth year			
6b Dietetics, home nursing and child care—10 weeks	..	Mathematics: geometry or elementary bookkeeping and household accounting	5
7 Home management (½)	7½	English	4
8 Advanced dressmaking and costume design (½)	..	History	5"

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Above the tenth year the course outlined is not in any large measure operative. No record was discovered to indicate how far the curricular requirements are being met. Since the academic subjects differ from those of the general scheme mainly in the matter of sequence it is probable that they are being met, though undoubtedly a good many girls are taking homemaking in addition to foreign language rather than instead of it. The proposed sequence deserves commendation in that it provides that science and American history and civics shall be made available to the majority of pupils rather than the minority. The reverse is still the case with the agricultural curriculum and with most of the curricula offered in rural high schools. The more significant, in general, is the subject content studied the more likely is it to be reserved for the few. In the curriculum proposed it is also noteworthy that a girl may escape algebra, but it is doubtful that many do.

"The courses are arranged in semi-yearly blocks with the aim in view of affording opportunity for as wide a range of instruction as possible each year, for the pupils who may leave school before the completion of the course.

"One double period (90 minutes) a day is to be devoted to the homemaking subjects in school and a home project requiring the equivalent of one period a day (45 minutes) is to be completed as described under "Home Projects." Credit for the work each year is to be given only after completion of the project.

"The sequence of courses during the four years may be adjusted to meet the needs of individual schools with the following exceptions: course 1 is a prerequisite to course 3; course 2 is a prerequisite to course 4; courses 2 and 4 are prerequisites to course 8; course 6 should not be given until the pupils have had a foundation of general science, hence is better deferred until the third year.

"It may be left to the discretion of the local administration as to the distribution of time to be devoted to courses assigned for each year. If so desired, homemaking 1 and homemaking 2 may be carried throughout the year by devoting two 90 minute periods a week one semester and three 90 minute periods a week the other semester to each course instead of carrying each course for one semester only. The same arrangement may be made for the courses outlined for the other three years.

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"In small schools where there may be but one teacher of homemaking it will be necessary to alternate at least two years of work. If the entering class is large each year, it is recommended that the first and second year's work be given each year and alternate the third and fourth year's work.

"The cooking and sewing taught in the seventh and eighth years whether organized in intermediate or junior high school or in elementary school will be governed by the Regents regulations for elementary schools.

"The home project shall be chosen along the line of the year's work in which instruction is being given.

"The academic and homemaking subjects outlined under the suggested curriculum meet the Regents requirements for an academic diploma. The selection and sequence of academic subjects is left to the discretion of the local school administration subject to the approval of the State Education Department. It is recommended, however, that a science sequence be required."

The half yearly block system, as against the parallel unit system, is less objectionable in homemaking than in agriculture. But it is noteworthy that the "wide range of instruction" provided in the first two years is within the field wherein the home experience of girls is least lacking.

"The content of a possible course of study is presented in a separate syllabus which may be obtained from the Division of Agricultural and Industrial Education upon application.

"The foundation of this course is the work in sewing and cooking which is being given in the grades (5–8) in a large number of the schools of the State. In those high schools in which there has been no preliminary instruction, time must be devoted to the foundation work and an adjustment made of the suggested projects.

"It is not intended to present in this bulletin a definite outline of topics to be covered in each subject, but to give the broad content of principles to be taught and suggest projects to illustrate the principles. Each local community will adapt the practical phases to meet its own needs."

A copy of the suggested syllabus is appended in connection with the discussion of content of instruction.

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CHAPTER II

AIMS OF TEACHING IN AGRICULTURE

IT APPEARS from a survey of the publications dealing with organization of the "schools" of agriculture, as well as those of homemaking, that the organization originally formulated and still in considerable measure operative was set up in advance of any very clear conception of the aim of the work, or of what the schools were expected to accomplish. The law itself says nothing concerning the aims of the work, except as such are implied in the name given to the schools. It is fairly obvious that an organization designed to prepare pupils for effective service in the pursuits of agriculture, that is for vocations in specific types of farming, will not be identical with one set up for the purpose of guiding pupils to intelligent choice of an agricultural occupation and the kind of life therein implied; and again that neither of the foregoing will be identical with a course organization for the purpose of giving a liberal understanding of the significance, social and scientific of agriculture. Though values under any of the three conceptions may be developed by an organization primarily appropriate to any one of them, yet the organization must derive its appropriateness and efficiency with reference to primary specific objectives. No organization has meaning as such except in terms of the purpose for which it is set up.

State Formulations

As will be evident from the report on aims of teachers there is a good deal of fogginess in respect to aims. That fogginess is legitimately derived if we note the statements of directing officers in the process of development of the work. The same organization is first credited with certain general objectives, and later with

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others, or at least a decided change of emphasis. In the first bulletin, published in May, 1911, describing the organization under the law, the following statement appears: "Agricultural education . . . . implies something broader than merely the establishment of certain new studies in the public schools. It suggests a scheme of education that strongly tends to induce children to continue in school until they are consciously prepared to begin their life work. It aims to provide for workers in the great productive and constructive industries the equivalent of what the State has long done and is doing for the professional and scholastic interests. It is based on a recognition of the *dignity of labor* and the necessity of *practical information*, experience and industry in the attainment of a *well rounded* education of the individual student. In recent years increasing recognition has been given to the value of agricultural study in the schools, not only for *general information* and *culture* but also in *laying a foundation* for *vocational interests* and in developing and training such interests toward personal and social efficiency. These courses . . . have thus both an *academic* and a *vocational* phase which relate them directly to the general educational work of the intermediate and secondary public schools."

Practically all, then, of the principal aims of public school education were to be achieved through the study of agriculture. If it were the most effective instrument for the accomplishment of such aims it should have supplanted most of the other teaching in the schools and been made compulsory for all, boys and girls alike. Certainly the intent of organization was very far from deserving the appellation *vocational*, even in the generic sense of including both guidance and preparation. So far as the "vocational phase" is concerned it included guidance and preparation for "workers in the great productive and constructive industries," probably including agriculture. A more vague or impossible conception of aim upon which to base a new organization, or to justify one already set up, it would be difficult to find.

In the bulletin of May 15, 1913, the work is still "based on a recognition of the dignity of labor and the necessity of a . . . . well rounded education." But the farming interest receives particular attention. "The successful farmer to-day must be as well

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prepared for his business as is a successful doctor or lawyer." It is implied that incidentally to giving him a "well rounded education" the course in agriculture is organized to effect such preparation. In a publication of the same year the chief of the division of vocational schools says "Such schools train young people for the business of farming." Evidently there is an approach to a vocational conception of aim, but the course organization remains as it was.

In the bulletin of November 1, 1916, no formal statement of aim is included. But it is stated with reference to the course of study, that "instruction is to be based upon the practical experience gained on the farm." That is, the present needs and interests of pupils are to guide in the determination of what is to be taught. Yet "definite courses of study should be formulated at the beginning and followed till there is urgent need for a change." Upon what basis they shall be formulated in advance of a knowledge of the interests and present needs of pupils is not stated. At the same time "a well balanced [with reference to what is not even implied] general knowledge of the *entire field* of agricultural science and practice should be represented" in the course. The trend toward shifting the responsibility for objectives to the teacher is evident, yet he is still held responsible for giving "general knowledge of the entire field."

In the most recent bulletin on organization, February 1, 1920, the director of the division states in the preface the conception of aim as follows: "The instruction is designed primarily for farm boys and young men of the community who desire to follow farming *as a vocation* . . . The true purpose of agricultural education is to fit for agricultural pursuits those who may cast their lot with the farm." Though the two sentences are not quite consistent, in that one considers farming *a vocation*, and the other implies the recognition of the actual status that there are *various vocations* pursued on the farm, yet the "*academic phase*" has disappeared, and the vocational phase has come to relative clarity.

The present supervising specialist made in April, 1921, the following statement of his conception of the aim: "The four year high school department has the aim: (*a*) To train and instruct boys and

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young men for specific farming occupations in the region in which the school is located; (*b*) to articulate such training and instruction with such economic and social science, related physical science, mathematics and English, as to promote a desirable type of farm and community living.

"The purpose of courses in intermediate schools is to give instruction and training to boys in the seventh, eighth, ninth, and tenth grades in—(1) Prevocational aspects of agriculture; (2) to a limited extent in the specific farming occupations of the community in which the school is located. The work of the seventh grade is primarily prevocational in character and is developed on the junior project basis. In the upper grades the work becomes vocational in character.

"Prevocational teaching is designed to give the pupil an intelligent insight into the dominant occupations of the region, and to give him a sufficient contact with those vocations to try out his ability in them.

"Vocational teaching is designed to fit pupils for useful and gainful occupations in agriculture."

Here are some fairly definite and acceptable statements of purpose, to the attainment of which there is evidence of a considerable modification of organization. The process of determining course content now approved, the acceptance of very marked deviations from previously standard subject sequence, and the provision for organizing the high school work into other than four year courses, are examples of the effect of the specifically conceived vocational aims. On the other hand, there is little evidence of an attempt to articulate vocational teaching with a country or farm life curriculum. No social or economic science is provided, much less required, for prospective farmers, other than is actually incorporated with vocational instruction. Mathematics occupies a place in the curriculum altogether disproportionate to any conceivable value that it may have in country life, and is, moreover, in nowise differentiated from the college entrance mathematics required of a city boy. The present group of studies pursued by vocational students differs from that of the college preparatory course only in the substitution of vocational subjects for foreign language. The division has given

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little attention to the curriculum as such, if a great deal to the course as such. Nor is there any evidence that junior project work in the intermediate schools or that given by departmental teachers to grade pupils outside the school or department is in any wise designed to give a pupil "an intelligent insight into the dominant occupations of the region." The fact that the junior project work is organized separately from the vocational work, with aims other than prevocational makes it unlikely that it can be relied on to effect the purpose stated. To discuss the aims and organization of junior project work is not within the task assigned the present study. If the work of seventh and eighth grades is to serve for vocational guidance, it should be organized to that end and not confused with the junior project organization.

The rather clear-cut conceptions of the supervising officer, then, serve to guide only with respect to the content and the method of the vocational courses and not with respect to curriculum or preliminary study. There results lack of unity in the organization of the secondary education of the farm boy who desires to pursue a vocation in agriculture.

Formulations of Teachers

Actually what the course is will be determined by the teacher of agriculture. He can even effect a certain measure of articulation with the prescribed college preparatory subjects with which his pupils are saddled, enlarging their meaning and appropriateness and thereby modifying the real curriculum, though not affecting the paper form of it. In the case of the principal who is active in the supervision of teachers in his school such wholesome effect may be developed to the full extent to which the formal drilling necessary to success in the Regents examinations permits. Accordingly the point of view of the teacher becomes important. Sixty-three of the sixty-six teachers replied to the following three questions: (1) "What do you regard as the purpose of your teaching?" (2) "Do you prepare boys to be farmers?" (3) "Do you prepare boys for special types of farming or vocations in agriculture?"

Noting the replies in the reverse order of the questions, 53 said that they did prepare boys for special types of farming, 10 said that

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they did not, 59 prepared boys to be farmers, 4 did not. Of the 4, none was an intermediate school principal.

Now it would appear from those replies that the specific vocational aim was accepted by more than five out of six teachers, and the general vocational aim by fifteen out of sixteen. Yet from the replies to the first question it appears that with one teacher out of four vocational preparation was purely an incident or accidental by-product of his teaching, with two in four it was to a greater or less degree subordinate to other aims of teaching, with one in four, only, it was the sole and dominant purpose of his teaching.

There is probably the human tendency in the replies to "splurge" a little concerning that to which we have given relatively little thought, and to fall back upon the "larger and nobler purposes," but on the whole the replies are carefully made.

The ideas implied fall under six categories of aim—vocational, prevocational, civic, promotional, liberalizing, and disciplinary.

(*a*) Under vocational aims were classified such as the following:

To make more efficient farmers.
To train boys to be practical farmers and to appreciate farm life.
To teach some useful technology, some skills, and to train boys to utilize them in making plans and carrying them out.
To teach the principles of farming through special local types.

(*b*) Examples of prevocational aims are:

To interest boys in farm life.
To give boys a better understanding of the importance and the opportunities of farm life and of their fitness for it.
To help pupils choose their vocation.

(*c*) Examples of civic aims:

To teach the responsibilities of citizenship.
To make loyal American citizens.
To make unselfish and able leaders in community life anywhere.

(*d*) Examples of promotional aims:

To keep the boys on the farm.
To lift to a higher level the agriculture of the community.
To aid farmers in every way possible.
To forward anything which will better agriculture.

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(*e*) Examples of liberalizing aims:

To give boys not going to be farmers an understanding and appreciation of farm life and farm problems.

To enlighten the community toward the farmer and his problems.

To inculcate in the minds of boys and girls of the present generation the dignity and importance of country life and work.

To make pupils realize the importance of the work of the farmer.

(*f*) Examples of disciplinary aims:

To train their faculties and powers by means of the science of agriculture.

To enable boys to work with their brains as well as with their hands if they choose another vocation than farming.

To train boys to think and to act.

To train the mind by study and the hands by laboratory and project work.

It is possible to comment only briefly on those statements of aim:

(*a*) Most of the statements of vocational aim are in accord with modern thinking, the second being an excellent example.

(*b*) The second statement under this category makes clear the prevocational aim as it applies to agriculture.

(*c*) The blanket aim of citizenship is almost a slogan nowadays, in part, at least, because it is so utterly ineffective as a guide to what should be taught. Hardly an item or a topic in the whole program of school studies but may be justified as contributing to citizenship. That is well, but it does not make the aim of the teaching the making of a citizen. In so far as the teacher of agriculture is effective in teaching of efficiency and appreciation in farming, to that extent he is contributing to good citizenship. But it is not the aim of his teaching to make citizens. That is properly the aim of the school system; his aim is to contribute certain relatively definite acquirements in learning that add to the qualifications of citizenship. A man who makes his aim in teaching agriculture the "making of loyal American citizens," denying that he is concerned with training farmers, is far from having a useful conception of his work.

(*d*) Admirable as is the ideal of service implied in the statements under what have been called "promotional" aims, the aims are

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detrimental if at all controlling in the organization of the teacher's work. It is as far as possible from a legitimate aim of any form of public education to "keep boys on farms" or anywhere else than in that form of living in which lies for them the fullest opportunity for self-realization and social service. Because a boy is born on a farm is no reason, under a democracy, that he should stay there. It is legitimate that agricultural teaching should discover to some farm boys, and others also, that in an agricultural occupation and in a farm life is an opportunity for making the most of themselves. When opportunities and fitnesses are fully made manifest to country boys probably more of them will remain on the farm, but that is a by-product of effective teaching, not the aim of teaching.

In the same way to serve the community and the farmers of the community is excellent. But if the teacher conceives of his pupils as mere instruments for use in serving the adult community, as has been done on occasion, then he is an exploiter of youth and not a teacher. That ultimately by his work with his pupils, and as a by-product, even, of their present work, he may expect to benefit the community is a reasonable and righteous expectation. But his teaching of boys in the public high school cannot be organized "to aid farmers in every way possible." The one legitimate way in which he can aid farmers in the process of his high school teaching is by what he does for their sons.

(*e*) The worthiness of the liberalizing aims no one will dispute. But the course which is designed "to enlighten the community toward the farmer and his problems" is probably one for city schools mainly. It is not a course for the training of the boy who intends to devote his life to work on the farm. That a well-organized vocational course will be incidentally to considerable degree liberalizing is true. But a course set up for a liberalizing purpose might well serve that purpose without having any serious vocational value.

(*f*) With regard to the statements under "disciplinary aims," it is safe to say that the teachers making them are so entirely ignorant of the nature and extent of mental discipline that their statements are meaningless as guides to the efficient conduct of their teaching.

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They are in need of a period of professional improvement at the best.

The frequency with which the various aims are expressed is as follows:

Vocational aim	48
Prevocational aim	12
Civic aim	14
Promotional aim	12
Liberal aim	19
Disciplinary aim	7

No evident difference in type of aim expressed was shown between principals and teachers of departments except in the case of the civic aim, which was expressed by an equal number of each, or by relatively twice as many principals.

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CHAPTER III

SCHOOLS TEACHING AGRICULTURE UNDER THE VOCATIONAL EDUCATION LAW

Distribution

IN May, 1921, there were in New York State seventy-six schools providing instruction in agriculture and receiving aid therefor from State and Federal funds. In ranking by the State department of education four of those schools were of intermediate grade and seventy-two were high school departments.

West of a line running north and south through Syracuse, including roughly a third of the State and its most productive agricultural regions, were forty-eight schools, as follows by counties:

	Agricultural schools	All rural high schools		Agricultural schools	All rural high schools
Chautauqua	9	21	Orleans	1	5
Cattaraugus	5	19	Ontario	2	9
Erie	4	18	Wayne	1	13
Genesee	1	8	Chemung	1	6
Wyoming	3	9	Cayuga	4	11
Allegany	2	16	Tioga	2	6
Monroe	2	12	Onondaga	1	21
Livingston	2	12	Oswego	3	12
Steuben	2	18	All other counties	0	33
Tompkins	2	9		48	263
Seneca	1	5			

Percent of agricultural schools on basis of total rural high schools, 14.45. Of these, six are in places of above 4,500 population; the other forty-two are included in the detailed study.

North of the Barge Canal and east of Syracuse, in what is roughly the northeastern third of the State, including the Adirondack

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mountain section, are nine schools, distributed by counties as follows:

	Agricultural schools	All rural high schools		Agricultural schools	All rural high schools
Jefferson...	1	22	Essex.....	1	13
Lewis.....	1	8	Saratoga....	1	8
Franklin...	3	9	All other		
St.Lawrence	1	25	counties....	0	63
				9	148

Percent of agricultural schools on basis of total rural high schools, 6.08. Of these, two are in villages under a superintendent and are not included in the detailed study.

South of the Barge Canal and east of Syracuse, in what approximates the southeastern third of the State wherein agricultural interests are probably subordinate to urban, are nineteen schools distributed by counties as follows:

	Agricultural schools	All rural high schools		Agricultural schools	All rural high schools
Otsego.....	4	19	Columbia...	1	6
Chenango..	4	13	Dutchess...	1	12
Delaware...	1	15	Putnam....	1	5
Sullivan....	4	10	Kings.....	1	0
Orange.....	1	16	All other		
Broome....	1	5	counties....	0	98
				19	199

Percent agricultural schools on basis of all rural high schools, 9.5. One of these is in a village under a superintendent and another in the borough of Brooklyn. The other seventeen are in communities classed under the law as rural.

The western third is numerically and proportionately best represented, but the proportion is very low.

Data with regard to the establishment of State-aided courses in agriculture are available back to the year 1911–12. The chances that a school established in the western third of the State will be

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located in a community of dominant agricultural interests are greater than in the southeastern third, except chance be eliminated by careful study of community needs and opportunities. Now, until the past two years nothing approximating a careful study has been made in advance of establishment. The ability and willingness of the school authorities to meet the requirements of the law have been the basis of establishment. That placement in an agricultural region has been a factor in the promotion of steady development in number of schools as well as in the permanence of departments is evident from study of development in the three sections of the State. A more exact study, entailing the records of agricultural vocations and their characteristics will be possible with the accumulation of records during the next few years. But the rough division made indicates that the present form of work is more appropriate to the genuine farming areas than to the industrial and summer resort sections. A table showing the total number of schools aided in each year, and the number and percentage proportion of each in the western, northeastern, and southeastern sections follows:

Year	Total schools		Western			Northeastern			Southeastern		
	Gain	Number	Gain	Number	Percent	Gain	Number	Percent	Gain	Number	Percent
1911–12	..	15	..	8	53.33	..	3	20.00	..	4	26.67
1912–13	9	24	5	13	54.16	1	4	16.67	3	7	29.17
1913–14	10	34	5	18	52.94	0	4	11.77	5	12	35.29
1914–15	13	47	8	26	55.31	3	7	14.90	2	14	27.79
1915–16	18	65	9	35	53.84	1	8	12.30	8	22	33.86
1916–17	7	72	1	36	50.00	2	10	13.89	4	26	36.11
1917–18	1	73	3	39	53.42	0	10	13.70	−2	24	32.88
1918–19	−13	60	−7	32	53.33	−1	9	15.00	−5	19	31.67
1919–20	8	68	8	40	58.82	0	9	13.23	0	19	27.95
1920–21	8	76	8	48	63.15	0	9	11.85	0	19	25.00

The western or agricultural third of the State, though showing the effects of the war as the whole State did, has developed consistently and steadily both numerically and proportionately; the southeastern section, showing a rapid early growth, has failed to maintain

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its numbers and its relative position; the northeastern section has remained in approximately the same status during the past six years.

One-half of all existing schools in the western section have maintained agricultural work for six years or more; one-half of those in the southeastern section, the same; and in the northeastern section the median duration of instruction in agriculture is seven years. Thus, as to schools that survive there is little difference.

Mortality

But there has been a relatively high mortality, or discontinuance of agricultural work. The difference between the southeastern and the other sections of the State in that respect is significant in the matter of indicated adaptation of the work to the needs of communities in which it has been set up.

Of 108 vocational courses in agriculture established in high schools during the ten years between October, 1911, and May, 1921, 32 have discontinued or 29.63 percent. Three schools out of ten taking up the work have for one reason or another discontinued it. In the southeastern section, of 37 schools taking up the work, 18 have discontinued, or 48.65 percent; in the western section of 60 schools taking up the work, twelve have discontinued, or 20 percent; in the northeastern section, 2 of 11 have discontinued, or 18.2 percent. Four out of five, then, in the western and northern sections have continued in the work. Every other one has discontinued in the southeastern section. The chances, then, of permanence in a northeastern or western community as against a southeastern have been as five to two.

The reasons for discontinuance are not clearly of record, but factors entering in each case have been recorded. Of these, the demands for men in military and other service are quite obviously the most important. Discontinuations by years are shown below:

1911–12	0	1916–17	8
1912–13	0	1917–18	15
1913–14	1	1918–19	2
1914–15	2	1919–20	4
1915–16	0	1920–21	..

Twenty-three of the thirty-two were discontinued during the period wherein the United States was an active participant in the

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war; and the discontinuance comes after continuance of from one to nine years.

Duration of course discontinued	1 yr.	2 yrs.	3 yrs.	4 yrs.	5 yrs.	6 yrs.	7 yrs.	8 yrs.	9 yrs.
Northeastern section..	1	0	1	0	0	0	0	0	0
Southeastern section..	3	7	1	3	0	2	1	0	1
Western section.....	0	0	3	1	2	3	2	0	1
Total schools.....	4	7	5	4	2	5	3	0	2

In the western section one-half the courses were five years old or younger, one-half six years old or older. In the northeastern and southeastern sections one-half were given up in the second or first years, one-half in the second or a later year.

Of those schools now defunct as to the agricultural course, in which the work persisted for more than a year, 28 in number, five were making noticeable gains in enrolment at the time of discontinuance, eleven had made a noticeable loss, twelve were maintaining enrolment consistently. One northern school was in the loss column, six eastern also, and four western. Or three-fourths of the schools dropped in the western section had not lost enrolment, one-half of those in the northeastern, and four-ninths of those in the southeastern. A loss of interest on the part of pupils, then, or other cause of decreased enrolment is not an important factor in the discontinuance of departments, though less so in the western section than in the rest of the State.

Of reasons given by the State supervisor the following are mentioned in order of frequency as contributing factors:

Location non-agricultural..... 9
Teacher went to war..... 8
Village people unwilling to pay toward course beneficial chiefly to non-residents..... 7
Weak or tactless teacher..... 7
Failure to meet minimum requirements for aid..... 6
Local political fight..... 5
Opposition of superintendent or principal..... 3

Two of these are significant of difficulties often met in the estab-

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lishment of departments. It was not many years ago that people complained because they were taxed for school support at a time when they had no children of their own in school. The spread of education has largely done away with that spirit. But it is not uncommon to find its like surviving in all types of communities. A village or city may derive its chief support economically from the farmers of the surrounding district. It maintains banks, stores, markets, and other remunerative institutions for their benefit and its own. But when it comes to schools, which yield no immediate economic returns, it ceases to be its "brother's keeper." To enlarge the opportunities of those neighbors, who may through that enlargement become better neighbors and greater contributors to the wealth and well-being of the village, it considers out of its province, even at the low cost entailed under a system of State aid. It is probable that no investment made by a village dependent upon the surrounding country will pay, in dollars and cents, the return that an enlarged educational opportunity will give, setting aside all questions of civic morality. The education of such communities in the matter is a function worthy of public endeavor. The adoption of a larger unit of support will minimize the difficulty.

The second is the attitude of superintendents and principals and other authorities concerned with the schools. Many of our officers in charge of rural high schools are men academically trained in the conception of education as a discipline of the mind, rather than as a direct development in specific lines. They are without education in the needs and opportunities of rural communities. To them agriculture is a purely mechanical occupation—not a life or a profession or an opportunity, but a field to which are relegated the mentally and culturally inferior. Unfamiliar with either the content or the method of agricultural education they oppose it in favor of the "cultural disciplines" of the academic subjects. So long as education is conceived of as a mere exercising of faculties, any form of it more costly than that involving book and blackboard recitation will be opposed. So long as the destinies of rural high schools are governed by those lacking knowledge of the meaning of education, and ignorant of the rights and responsibilities of the pupils with whom they deal, the enlargement of the high school field through vocational education will be a difficult matter. The setting of an

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equivalent in qualifications for certification to the job of rural superintendent or principal comparable to that even now set for teachers of agriculture would go a long way to the enlargement of educational opportunity for boys on the farms of New York State.

A reading of the publications of the State office in the earlier days of the movement to promote agricultural education gives ground for the belief that another cause of mortality, not mentioned in records, but often in conversations, has played a part. "Propagandizing" has led not only to inappropriate placement of courses, to the hurrying in of not fully qualified teachers, but also to the raising in the minds of the people of communities concerned of expectations out of all proportion to probable or possible results. That the injection into a community of a young man out of the agricultural college will in the course of a year or two resolve most of the social, economic, and educational difficulties to which that community is heir was not far from the tenor of the song of the earlier sirens of propaganda. That any comparable results have failed to come has disappointed and disgusted certain people and communities. Fortunately that stage of the movement, never quite so virulent in New York as in some states, has passed.

Accessibility

The rural high schools of the State are divided in the report on secondary education into four classes according to enrolment: I, 1–49, pupils; II, 50–99 pupils; III, 100–149 pupils; IV, 150 pupils and over. Class I constitutes 54.5 percent of all rural high schools; 84 percent fall in the first two classes. Now the agricultural schools distribute by classes as follows: I, 16 schools; II, 32 schools; III, 12 schools; IV, 16 schools. The nine schools in places of 4,500 and over population, eight of which in considerable measure serve rural communities, belong to class IV. Thus the smaller country schools are by no means represented in proportion to their number.

The division is aware of the fact, attributable chiefly to difficulties in meeting the enrolment minimum, and offers, at present two methods of meeting the difficulty. First, the employment of an agricultural man as principal; second, the combination of two small schools, reasonably adjacent to one another, in the employment of a single teacher.

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CHAPTER IV

TEACHING AGRICULTURE

DURING April and May of 1921, 26 schools were visited for one day each in order to observe the teaching of agriculture. By counties they distribute as follows:

Chautauqua	4	Onondaga	1
Cattaraugus	1	Cayuga	4
Erie	3	Seneca	1
Monroe	2	Tompkins	1
Genesee	1	Tioga	2
Oswego	2	Chenango	1
Wyoming	1	Otsego	1
Orange	1		

Twenty-five of them were organized as vocational schools or in high school departments, in eight cases the teacher was also principal, and one was under the intermediate school organization.

Distribution of Lessons

The expense of observation forbade the use of a larger number of schools but, though the total is small the proportion of schools observed is somewhat larger than in any other field of the survey except homemaking—39.4 percent. The number of teachers observed was 26 and the number of lessons, 54. Those distribute as follows:

	Number	Percent
Classroom lessons	26	48.15
Laboratory lessons	11	20.37
Shop lessons	6	11.11
Field lessons	11	20.37

What is probably a fair representation of the distribution of the forms of teaching in use during the spring months is thereby pre-

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sented. As contrasted with the teaching of homemaking the number of recitations and discussions in the classroom runs high. Compared with standard procedures in high school sciences the "practical" lessons run high. In April and May field work may reasonably be expected to be at its maximum, indoor work at its minimum. From the standpoint of ideal distribution of teaching forms, the showing made in field work is disappointing, only one lesson in five making use of the extra-school resources of farms and the community. Probably, however, as compared with the teaching of earlier years and the teaching prevalent in many States the percentage of lessons devoted to field work must be regarded as encouraging. If middle April to June and middle September to Thanksgiving maintain an equal standard, then it is likely that not more than one lesson in ten is a field lesson for the academic year. Against this is to be set the fact that the summer months are devoted entirely to individual teaching on farms. Though, ideally, too little time is devoted to field work, in practice it is noted that teachers are relatively unsuccessful in the effective handling of groups in the field as compared with handling them in the classroom and laboratory. The superior objective teaching opportunity is, as yet, offset by an inferior organization of the work. Skill in field teaching must be increased if there is to be an effective increase in the amount of time given to it.

Since only one lesson in nine is given to shop work and the majority of teachers are engaged in teaching shop, it seems that the oft repeated injunction to emphasize shop work at periods of the year when it does not interfere with the use of outside resources is being given some heed. On the other hand the laboratory and classroom work appears excessive for the season. But there is certainly no basis here for the charge that agricultural teachers devote themselves to manual routine in teaching. If there is any field of teaching in high schools in which a comparable balance is maintained the surveyor is unacquainted with it.

Size of Classes

Numbers in attendance on the various lessons observed distributed as follows:

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Pupils present	Number cases	Pupils present	Number cases
2	3	9	2
3	2	10	2
4	8	11	1
5	8	12	1
6 median	13	13	1
7	2	16	1
8	10	..	..

In half the cases, then, the number of pupils present was 6 or less, in half the cases 6 or a greater number up to 16. In just half the cases the group taught ranged from 6 to 9.

By grades the lesson attendance was as follows:

Grades present	Number cases
Eighth grade only	2
Ninth grade only	18
Ninth and tenth	5
Tenth grade only	12
Tenth and eleventh	1
Eleventh grade only	5
Eleventh and twelfth	3
Twelfth grade only	6
Eighth, ninth, tenth, eleventh, and twelfth	1

In 68.5 percent of the cases, the teacher was dealing with the lower classes of the high school only. In only one case was the complete range of school classes represented. The combination of successive grades is appropriate to the policy of alternating the subject years of the course.

Two indications, so far as the limited data go, are evident in the preceding tables. First, that classes are small in agriculture, but that, in point of numbers they compare not unfavorably with those in other courses of high school work. The ranges in median size of classes, made up of both sexes, and for all subjects are for schools of enrolment total 1–49, 7; 50–99, 12; 100–149, 17; 150 and over, 20. Considering that agriculture is as a course, elective, and is made up wholly of boys in enrolment, the comparison with all subjects is favorable.

Second, that the orderly sequence of grades in the course is being maintained—that agriculture is not serving as a group of elective units for all classes in the high school as appeared to be the case in

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homemaking. Whether or no it should so serve, at least in the initial subjects, is not here debated. The point is that the State vocational policy is maintained in agriculture as it is not in homemaking.

The number of lessons by subject years is shown below:

Subject year	Number lessons	Percent by years
I. Poultry husbandry	8	
I. Vegetable gardening	9	I. 42.6
I. Farm shop	6	
II. Farm crops	9	II. 25.9
II. Soils	5	
III. Animal husbandry	7	
III. Fruit growing	3	III. 18.5
IV. Agricultural engineering	7	
IV. Farm management	0	IV. 13.0
	54	

Further evidence in regard to size of class groups and frequency of subject years is given in the following table for 61 of the 66 schools included under the "rural" category:

Number pupils	First year subjects	Second year subjects	Third year subjects	Fourth year subjects	All subjects
1	1	0	1	4	6
2	1	1	2	1	5
3	0	1	5	5	11
4	2	1	4 m	2	9
5	0	4	4	5 m	13
6	4	1	3	5	13
7	7	5	3	4	19
8	2	2 m	0	2	6
9 m	3	6	1	..	10
10	6	3	0	..	9
11	2	1	0	..	3
12	3	0	1	..	4
13	0	3	..	..	3
14	1	1	..	..	2
15	2	2	..	..	4
16	1	0	..	..	1
17	0	2	..	..	2
19	2	1	..	..	3
20	0	1	..	..	1
22	0	1	..	..	1
23	1	1	..	..	2
26	1	..	..	..	1
	40	37	24	28	129
	Median 9	Median 8.5	Median 4.5	Median 5	Median 7

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According to these data half of all classes held have an enrolment of seven or less, half an enrolment of seven or more up to 26. Somewhat more than half the pupils meet in groups of from five to ten. The difference in size of groups between the lower classes and upper classes is marked. Half the classes in first year studies number nine or less, half nine or more. Somewhat more than half meet in groups of from seven to twelve. In second year subjects half the groups are eight or less, half nine or more. Somewhat more than half meet in groups of from seven to thirteen. In the upper classes third year subjects enrol groups half of which are four or less, half five or more to twelve.

More than half the groups are from three to six in number. In fourth year subjects groups range from 1 to 8 in size, half having five or less, half five or more. More than half are in groups of from three to six. The close likeness between the two lower, and again the two upper classes is accounted for by the practice of alternating subject years as noted previously. The upper class median is of the lower class median 54.29 percent.

Holding Power

In this last item is an indication of apparent holding power in agriculture decidedly above that of all upper class studies taken together. The medians rather than total enrolments were used in agriculture, because so many new schools are unrepresented in the upper years of the agricultural course. Figures for total enrolment of both sexes in 435 rural high schools by years are as follows: First year, 5158; second year, 3147; third year, 2027; fourth year, 1427. The enrolment of the upper two years is of that of the lower two 41.58 percent. The gain in agriculture is approximately 30 percent.

Arrangement and Promptness

Observers were asked to report on failures of arrangement or planning which resulted in greater or less waste of time or effort by class or teacher. Such deficiencies were reported for 10 cases of the 54 observed, 18.52 percent. No time was wasted, according to the observers, in 37 of the 54 cases, 68.52 percent. One minute was

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wasted in 5 cases, two minutes in 4 cases, three minutes in 2 cases, five minutes in 3 cases, ten minutes or more in three cases. On the whole, then, a reasonable promptness and an effective arrangement of seating, materials, tools, etc., prevailed.

Aims of Lessons

The aims of lessons were arrived at by the following means:

	Cases
Stated by teacher to class	7
Told by teacher to observer	26
Judged by observer	21
	54

The aims are almost as varied in detail as the topics and problems considered. They may be roughly classified as follows:

	Cases
To give factual knowledge or information	16
To give knowledge and develop principles	14
To give knowledge, principles, and skill	4
To give knowledge and skill	6
To give skill	8
To check on status of school work	3
To get a job done without regard to educational value	3
	54

Technology preponderates over technique. Mere information plays a large part, but, as a whole, the showing is good. That one lesson in nine was not intentionally educative is not altogether encouraging. The intervention of shows, arbor day, and clean-up day accounts for part of it, and the taking stock of ground covered with the approach of the end of the year for the rest. There is no opportunity for comparison with other teachers in this respect. It is probable that boys in agriculture are called upon to prepare materials for exhibit, regardless of any learning value in the work to them more often than other boys in the high school, but all pupils do something of the sort.

Attitude of Pupils

For all lessons observers were asked to record the attitude of the class under the following heads:

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	Classroom lessons	Other lessons
1. Unusually attentive and interested	11	9
2. Ordinarily interested and well behaved	13	17
3. Indifferent but keeping order	1	1
4. Inattentive and disorderly	1	1
	26	28

The showing here is, on the whole, very favorable. The percentage of unusually attentive and interested pupils is high (37.03 percent); of indifferent and disorderly low, 7 percent (academic classes, 24 percent). As compared with observed classes in other subjects agriculture stands well. The influence of a man teacher, however, is not to be overlooked, if it cannot be measured. Normal order probably runs higher with men teachers than with women, where boys are concerned, but superior interest cannot be accounted for on that basis.

Proportion of Class Kept Busy

Observers were asked to estimate as closely as possible the proportion of the class kept busy during the lessons observed. The summary follows:

Proportion kept busy	Classroom lessons	Other lessons	Total
Not reported	3	0	3
None	1	1	2
1/8	1	1	2
1/4	1	2	3
1/2	2	2	4
2/3	2	4	7
9/10	1	..	..
All	15	18	33
	26	28	54

The success of agricultural teachers in classroom lessons runs high in keeping the entire class active (57.7 percent), and high too in the other lessons and the total (64.28 percent and 61.11 percent). In the latter case, however, they fall below teachers of homemaking, 81.81 percent. The great majority of homemaking lessons were

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projects in sewing, in which often, mental activity, relevant to the problem at any rate, was at a low ebb. In terms of keeping pupils mentally active, teachers of agriculture rank above the norm of high school teachers, teachers of homemaking below that norm.

Pupil Activity

Another index to pupil activity was sought by asking the following question of observers: Were pupils active in contribution (other than mere reply to questions), in questioning the teacher, or each other, in criticism? Reports follow:

	Classroom lessons	Other lessons	Total
Not active	6	10	16
Active in contribution	3	2	5
Active in criticism	0	1	1
Active in questioning	12	13	25
Active in both contribution and questioning	4	0	4
Active in both criticism and questioning	1	2	3
	26	28	54

Again the indications of pupil activity are encouragingly high. The percentage (70.37) is above that for the run of high school teachers and considerably above that in homemaking. Academic studies approximately 40 percent; homemaking, 56.14 percent.

Assignments

In the making of assignments agricultural teachers are notably weak, and there is for them less of an excuse than for the homemaking teachers, since fewer of the lessons, outside of shop, are mere continuations of work on already given projects. The idea seems to have been inculcated among vocational teachers, judging without data and only from conversation with teachers, that under a double period schedule pupils should not be given outside work to do. Were such an idea valid, the necessity for assignment and preparation is not done away with. A part of the period given to supervised study calls for text and reference assignment. Use of

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home and farm data effectively even on teacher conducted field trips calls for careful preliminary assignment. The rather notable weakness of field trips observed was due in large measure to the lack of such assignment.

Reports on assignments appear in the tables below:

	Classroom lessons	Other lessons	Total	Percent
No assignment given	9	22	31	57.4
Given at or near beginning	3	2	5	..
Given at end	13	4	17	..
Given at another time	1	0	1	..
	26	28	54	..

Time given to assignment	15 sec.	30 sec.	40 sec.	1 m.	2 m.	3 m.	5 m.	30 m.
	2	6	1	8	3	1	1	1

Homemaking—None given	4	73.7
Academic " "	36	16.0
All classroom	40	

Method		Kind	
Given orally	22	Group assignment (all alike)	22
Given on blackboard	1	Individual assignment	1
Record made by pupils	3		

Assignment given as:

Text or topic reading	16
Problem	5
Task	2
Reference to:	
Text or bulletin	16
Objective data	1
No reference	5
Assignment grew directly out of lesson	2
Assignment according to teacher's plan or text sequence	21

Some data in regard to assignments are available from the questionnaires sent to teachers. Fifty-seven teachers cited details of topic assignments to the number of 160, which classify as follows:

Number of teachers reporting text assignment only	20
Number of teachers reporting text and varied reference	22
Number of teachers reporting varied reference only	15
	57

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That report is more encouraging than the observed teaching. That two teachers out of three are teaching boys to make use of sources other than the single subject text is promising.

Use of Texts

In regard to the use of text and reference these further data are significant. Sixty-three teachers reported:

Using text only	1
Using text and reference	60
Using reference only	2

Planning

All teachers are required to submit by November 1 of each year a rather detailed plan of the subjects to be taught during the year, indicating the topics to be studied, the month in which they are to be taken up, the probable allotment of time to each, and the projected form of lesson, *i. e.*, classroom, laboratory, shop, or field. In reply to the question, "Do you follow closely the outline of your course that has been approved by the state officers?" the answers are as follows:

Following plan closely	44
Not following plan closely	19

In regard to planning of individual lessons, observers were asked to report when evidence in the form of a written plan, outline, special collection of materials, and the like appeared. In the case of classroom lessons such evidence appeared only 6 times, in the case of other lessons, 8 times, or in only 26 percent of all lessons. That the showing here is, by comparison, bad, however, is not to be inferred. Homemaking shows 25.45 percent; academic is not reported.

Observers reported that in 11 classroom lessons and 9 other lessons the teacher had clearly prepared himself with respect to the subject in hand; in the other cases he relied upon his knowledge of the subject without special preparation. That in almost two cases out of three no special preparation was evident is not encouraging. That teachers of agriculture are an unusually well-equipped group of teachers is hardly a justification for the apparent

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state of affairs. Teaching without special preparation, if it be effective, is not so effective as it might be with special preparation.

Preparation of Pupils

In line with the infrequency of assignment already reported on in schools under observation is the infrequent special preparation of the lesson by pupils. For shop and laboratory lessons and some field lessons there is often little required in the way of advance preparation by pupils, but in the case of classroom lessons the lack is noticeable. In only nine cases was a well-prepared lesson reported by observers for classroom lessons, and in six cases for other lessons.

On the other hand, evidence of system and unity in the lesson is fairly evident in the majority of cases, namely, in 18 lessons in the classroom and 18 in laboratory, shop, or field, or in exactly two lessons out of three. Lack of system and organization is one of the outstanding faults of academic teaching. The showing here is relatively good on the basis of unannounced visiting by strange observers, and the undoubted tendency of certain teachers to be "rattled" or "set up" by the presence of a visitor. In several cases the desire to display the attainments of pupils over a considerable range of technology destroyed all unity in the lessons observed.

Types of Lessons and Procedure

Classroom lessons observed may be in some measure compared with those in the academic subjects of the curriculum, since a few like points were considered and reported on. But the shop and field lessons and most of those classed as laboratory lessons are not readily comparable with those in other subjects in which the teaching was observed. The nearest comparison is in the homemaking field of vocational work.

The time used for classroom lessons is reported as follows:

20 minutes	1
30 minutes	4
45 minutes	10
50 minutes	3
70 minutes	1
80 minutes	2
90 minutes	1

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The tendency to prolong the recitation period to fill the entire double period devoted to agricultural instruction is not very marked.

Classroom lessons as mere text rendering are reported in only 4 cases 15.34 percent, as against 45 percent with academic teachers'—a very favorable showing; as development lessons, 6 cases; as topic discussion, 7 cases; as topic discussion in review, 9 cases—61.54 percent as against 15 percent with academic teachers. That superior types of classroom lessons prevailed is evident. The proportion of reviews runs high, probably because of the approach of the end of the academic year, but not as high with academic classes (34.6 percent as compared with 46 percent).

Procedure was varied, question and answer predominating in 22 cases. Teachers resorted to telling in 14 cases, boys worked at the blackboard in 11 cases, and took notes in 7. The habit of lecturing among teachers of agriculture, derivative of their college experience, which was notorious five or six years ago, has evidently been largely overcome. Topical discussion by the class has come in largely to replace it. No serious general faults can be found with classroom procedures.

To make the work concrete, teachers used illustration in five cases and specific reference to pupils' experiences in 19 cases. No attempt at concreteness other than that of the text is reported in only 4 cases (agriculture, 15.4 percent, academic, 45 percent). Here is an excellent index of good teaching.

Attention to the McMurry standards of initiative, evaluation, and organization was noted as follows:

None	3	Evaluation	18
Initiative	6	Organization	8

The thinking processes are not largely neglected.

In lessons other than classroom the types were classified as follows:

Project—An undertaking resulting in a material product belonging to the pupil and appropriate to his present needs in farming at home.

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Problem—An undertaking involving planning, analysis, evaluation as well as doing, regardless of whether it be a beginning project or no.

Practicum—An undertaking for the acquirement of skill, in which boys know what they are to accomplish.

Exercise—Doing merely because it is the task of the day, following directions without purpose.

Observation—The acquisition of meanings without participation in the work done.

SUMMARY OF REPORTED TYPES

	Laboratory lessons	Shop lessons	Field lessons	All
Project	0	2	2	4
Problem	6	1	1	8
Practicum	1	1	1	3
Exercise	4	2	2	8
Observation	0	0	5	5
	11	6	11	28

The lack of understanding and motive for work is indicated chiefly in the exercise type most conspicuous in laboratory and shop work. On the whole, the showing is fairly good, thinking being required in at least one case in three. In the judgment of the surveyor that is a somewhat higher standard than is shown in the laboratory work of the high school sciences, and according to actual data, higher than in homemaking laboratory work.

In procedures the following standards were used:

Demonstration—The teacher sets a standard of procedure by doing the thing which the pupils are to do.

Direction—The teacher tells the pupils what to do.

Suggestion—The teacher by illustration, remark, or question leads the pupil to discover for himself what to do.

Practice—The pupil does the manual work.

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Procedures

Primarily Group Teaching

	Laboratory lessons	Shop lessons	Field lessons	All
Demonstration	0	0	4	4
Demonstration and practice	0	0	1	1
Direction and practice	0	2	2	4
Suggestion and practice	2	1	1	4
Practice only	4	1	1	6
Question and answer	0	0	1	1

Primarily Individual Teaching

	Laboratory lessons	Shop lessons	Field lessons	All
Direction and practice	2	0	1	3
Suggestion and practice	2	2	0	4
Practice only	1	0	0	1

In 25 percent of the cases of teaching other than classroom, the boys were left entirely to their own resources. In five of the seven cases the work was in laboratory, where a manual is usually available. In 25 percent of the cases the teacher confined himself to explicit directions as to how to get the job done. In half the cases a superior form of teaching was used. Compared to the work of the homemaking teachers, this is a favorable showing, but the attitude of the foreman is a little too pronounced for the best educative results. To get a job done by giving directions one by one is perhaps an efficient means. To develop responsibility and initiative in boys learning to work it is a poor one.

In the conduct of so-called "practical work," good teaching demands attention to the McMurry standards as well as in other forms of teaching. In addition, the learning pupil must be made aware of the process of his doing. Efficiency in doing involves the factors of speed and accuracy. Reports as to those aspects of the teaching observed follow:

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	Laboratory lessons	Shop lessons	Field lessons	All
Attention to:				
Evaluation	1	0	2	3
Organization	0	0	1	1
Process analysis	0	2	2	4
Accuracy	3	1	0	4
Speed	1	0	2	3
Accuracy and analysis	1	1	0	2
Accuracy, analysis, organization	2	0	1	3
Analysis and evaluation	1	0	0	1
Analysis and organization	1	0	0	1
No attention to any factor	1	2	3	6
	11	6	11	28

Shop teaching in particular appears to be to a high degree mechanical. The number of cases is small, but the conclusion is in line with observations reported apart from the survey. The supervisory officers and teacher trainers are aware of the deficiency and are giving considerable emphasis to shop teaching. Field lessons are not strong here either, but their chief weakness appears in a failure to keep boys continuously and appropriately active.

Impressions of Teachers

Reports upon the observers' impressions of teachers in appearance, voice, and manner are reported as follows:

Appearance		Voice		Manner	
Pleasing or attractive	15	Clear and deep	4	Pleasant	14
Neutral	7	Good	15	Considerate	2
Unattractive	2	Indistinct	6	Vigorous	3
Shabby	1	Harsh	1	Quiet	1
Unhealthy	1			Nervous and giggly	1

Probably agricultural teachers compare favorably with the run of high school teachers in those respects. The most conspicuous defect, indistinct speech, is remediable if persistent attention be given to it by teachers.

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Observers' impressions of the teachers' knowledge of the subject taught are reported as:

Exceptionally good	2
Good	18
Bookish	1
Uncertain	5

Impressions of vocational competency, or possession of abilities such as the teacher is trying to develop in boys, follow:

Exceptionally good	2
Good	19
Uncertain	5

In terms of knowledge of the subject and vocational competency it is, perhaps, significant that the proportions seem very close to those revealed in the matter of technical preparation.

Reports on the apparent professional attitude of the teacher as revealed in appreciation of his work, and desire for growth in it, mainly impressions gained from observation, record of work, and conversation, follow:

Excellent	3
Good	12
Fair	3
Poor	8

The percentage of those unprofessional in attitude here is fairly comparable with that shown in the report on the undertaking of professional improvement, but generalizations are unsafe.

Apparent attitude of pupils toward the teacher and his apparent influence over them are reported below:

Attitude of pupils friendly and respectful	16
Attitude of pupils friendly	9
Attitude of pupils disrespectful and unfriendly	1
Influence strong and good	5
Influence good	16
Influence weak	5

Ratings

Reports of observers on teaching, including a detailed story beyond the points checked above, were read and discussed for each teacher and rated separately and jointly by the surveyor of voca-

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tional teaching and the surveyor of academic teaching in high schools. In only two cases was there any difference in the rating and in both cases the conservative rating was adopted.

	Number of cases	
Very high grade teaching	1	
Superior teaching	8	Percent above normal, 34.62
Normally good teaching	12	
Inferior teaching	4	Percent below normal, 19.23
Very low grade teaching	1	

That in terms of observed success the teachers of agriculture rank above the norm of all teachers observed in the survey of high schools and considerably above the teachers of homemaking is fairly evident. If the random selection be fairly representative, as the probabilities are that it is, then the differences in success of teachers in the two rural vocational branches is fairly commensurate with their relative standings in technical and professional training.

Other indications of the greater or less ability shown by teachers of agriculture in meeting the problems of teaching are indicated by replies to the questionnaire. For example:

Skills

Fifty-nine teachers of 63 reporting keep a list of skills in which boys must acquire proficiency for graduation. There is no State requirement that they do so. The range of skills reported is from 4 to 41, with a median of 14. That indicates intelligent procedure.

In answer to the question, "Do you require the same skills of all?" 45 say yes; 18, no—all teachers replying to the question. Except all pupils are prospectively (1) to pursue the same occupation in agriculture, or except (2) the skills selected are those appropriate to all the several occupations for which pupils are preparing, only the minority of teachers are intelligently discriminating.

With regard to the first point, some evidence is to be had. In reply to the question, "Do you prepare boys for special types of farming?" 10 teachers only said no; 53 said yes. The types mentioned by teachers for which boys were heading in their

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schools are mentioned with the following frequencies by the 53 teachers.

Dairy farming	48	Peach growers	1
General farming	17	Small fruit growers	7
Poultry farming	39	Grape growers	4
Farm managers	14	Market gardeners	12
Apple growers	12	Farm mechanics	9

To the question, "Do all your boys intend to follow the same occupation?" 6 answered yes, 57, no. Evidently, then, the answer of the majority is not to be justified by the needs of a common occupation.

With respect to the second possible justification, the evidence is taken from the lists of skills submitted by teachers. The data are not to be relied upon very securely for the reason that a suggestive list furnished in the questionnaire had a marked influence on frequencies. The 14 most frequently reported skills are as follows, in order of frequency:

1. Culling hens.
2. Sharpening a saw.
3. Testing milk.
4. Judging dairy cattle.
5. Pruning apple trees.
6. Grafting.
7. Spraying trees.
8. Budding.
9. Adjusting a carburetor.
10. Milking.
11. Harnessing a team.
12. Driving a team.
13. Tempering a chisel.
14. Making a bridle.

Certain of those skills are particularly appropriate to poultry keeping, to dairy farming, to fruit growing, etc. No study has yet been made to determine the vocational necessity for any of them, but the majority probably have a rather wide applicability in agricultural vocations. There appears, then, a probably reasonable basis for the reply made by the majority of teachers.

Those 18 who reported a differentiation in requirements may be classified as to reasons given as follows:

Based on differences in acquirements already possessed by boys—do not teach what the boy knows already, but only such as represent a deficiency, 8 replies.

Based on differences both in skills and proficiencies in skills requisite in particular occupations for which boys prepare, 6 replies.

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Based on immediate interests and needs of the boys in the conduct of their home farm work, 4 replies.

A very creditable degree of professional insight is shown in such replies.

Asked, "Do you test for all the skills you require?" 44 teachers replied affirmatively, 19 negatively.

"By what means do you determine the degree of skill required? Please cite a case." The replies indicate a general tendency to determine standards empirically according to the vocational experience of the teacher. The question is interpreted almost invariably as referring to the acceptability of various proficiencies rather than to the determination from vocational data what those proficiencies should be. Very few men have given to the latter important consideration much thought.

Three, however, state that they judge the degree of skill by the known requirements of the vocation.

Twenty-eight consider proficiency sufficient when the objective of the skill in product is attained acceptably to the teacher.

Five give heed to speed and accuracy in process.

One uses a score card for certain skills.

One varies the proficiency standard according to the age, physical and mental limitations of the pupil.

The examples cited classify as follows:

Making a product that will bear the test of use, *e. g.*, sharpening a saw, then using it, 8.

Accomplishing a result that satisfies the teacher, *e. g.*, plowing a field which is later inspected; making a graft which is later examined, 24.

Going through a performance which satisfies the teacher, *e. g.*, culling a flock of hens, testing a sample of milk, 20.

The tests are mainly by observation and inspection by the teacher in:

Home project work	27
Farm practice	4
Assigned jobs	2

One teacher resorts to written quizzes to test the proficiency of his boys in practical skills, and another depends upon a written report describing the process.

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Such absurdities are an insignificant minority. For the most part teachers are using considerable intelligence in judging of proficiency, if it be impossible to tell how effectively they are determining the necessary degree of proficiency.

Only 21 of 63 teachers undertake to teach all of the skills which they expect their pupils to possess. Two out of three do not attempt it. Those that they do teach are chosen on the following basis:

Choose from those of importance the skills with which the pupil is least familiar, 8.
Choose only those which may not reasonably be expected as a by-product of home farm experience, 10.
Choose those which are most useful in the conduct of the boys' projects, 7.
Choose those which are specifically adapted to the pupils' prospective vocation, 10.
Choose only those for the teaching of which material and opportunity are available, 3.
Choose those that can be supervised best at the school, 2.
Choose those in which teacher is proficient, 1.

Restricting choice to those which can be taught by the teacher at the school is, perhaps, the only unjustifiable basis of selection recorded. As to the last cited, if more are necessary than the teacher is competent to teach, either he should immediately set about the acquirement of the necessary competency, or he should resign and give the boys a chance with a competent teacher. The others are variously reasonable and thoughtful bases for selection.

Forty-four teachers offered suggestions with regard to the proper selection of skills to be required of pupils, all of which are worthy of consideration:

Choose those skills which are most widely and most frequently usable, 16.
Choose those which are specifically required by the particular prospective vocation, 13.
Choose those which the pupil does not normally acquire at home, 7.
Choose according to the individual needs and interests of pupils, 7.
Choose those requiring least expense in material and equipment, 1.

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In regard to the testing of skills, 35 made suggestions much in line with the practices already indicated. All but the last two are good. It would seem, however, that specific assignments to jobs requiring the use of the desired skill must often be necessary in the case of the project and farm employment if the testing is to be thoroughly and systematically done.

Test by the home project	27
Test by observation of farm practice	4
Test by assigned jobs	2
Use a written quiz	1
Use a written descriptive report	1

That any teacher can hold to the opinion that he can determine a boy's proficiency in culling hens, filing a saw, judging dairy cows, pruning apple trees, making a graft, etc., by having the boy write a description of what he would do instead of doing it, is hardly conceivable. But the academic faith in the written word still survives with two of the teachers, even in such matters.

With respect to the teaching of skills the following suggestions are offered:

Use demonstration more frequently	4
Use problem method	4
Drill more frequently	2
Give heed to the process steps	2
Teacher should make his procedures conform to community practices	2
Teacher should try himself out in a skill before attempting to teach it	2

All of them are sensible suggestions, but they come from relatively few teachers. The tendency to neglect motive and to slur over the process is not infrequent, as the observation of teaching shows. The use of demonstration precedent to practice is surprisingly infrequent, considering that so large a proportion of teachers received their training in the agricultural college. To set a pattern of procedure and achievement whereby the trial and error attempts may be guided and corrected is an economical, if not very nearly an essential, means to successful practice acquirement of skills. The suggestions are well worth the careful consideration of teachers and teacher trainers.

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Modification of the Course

It has been noted that teachers have a prepared and approved yearly outline of work, and that the majority are using it as a guide in their work. Fifty-five teachers have given reasons for modifying in greater or less degree, and 54 have cited cases of changes. The reasons in order of frequency of citation follow:

In order to adapt work to the local opportunities for effective teaching	21
In order to adapt work more closely to seasonal opportunities for teaching	20
In order to make a closer adaptation to the needs of the community	17
In order to make more satisfactory adjustment to the time requirements for learning	9
To meet the expressed needs of pupils	7
To conform to the project needs of pupils	7
To adjust to the particular existing acquirement of pupils—their present abilities	5
To meet deficiencies in equipment	3
To conform to suggestions of supervisory agents	2
At suggestion of advisory board	2
To have more time for competitions	1

The last seems open to question. Except as competitions have superior educative value, no sacrifice of teaching time should be made for them. Contest proficiency for the sake of standing in a contest has too often, in agricultural teaching, led to neglect of far more significant things, and to waste of time and effort in the acquirement of proficiency of advertising value that is wholly or largely useless in the life of the farmer. The other reasons for modification, in the absence of knowledge of what supervisory agents and advisory board suggested, are eminently sound. To change merely because somebody suggests that you should do so is not wisdom; to change because the suggestion is good, is wisdom on the part of the teacher. The commendable flexibility of the program under present policy of the State is here indicated.

The character of changes cited is indicated below:

Changes in time emphasis	33
Changes in sequence of topics	26
Amendments	15
Emendations	3
Substitutions	2

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Technology

An attempt was made, through the questionnaire, to get at the general tenor of technological instruction by asking teachers to cite, under a selected topic, the details which were treated under it. The topics indicated were of reasonably comparable scope, but the variations in statement of detail were so great, running from three blanket headings to forty-three minutiæ, that little could be judged of scope from the result. There did appear, however, to be two methods of organization, possibly three. When the headings appeared in recognizable text-book order and statement, logical with reference to the topic, the treatment was cited as academic. When such treatment clearly involved a somewhat advanced biological, chemical or physical implication, the case was classed as scientific. When the organization was made with clear reference to a vocational job to be done and the means to doing it, whether text derived or not, it was classed as practical. On the basis of such judgments the following results appear. No significant difference between principals and departmental teachers was noted.

Examples given	61
Academic treatment	39
Scientific treatment	8
Practical treatment	14

So far as treatment is to be judged by the submitted organizations, it appears that in classroom work in technology a logical and somewhat academic treatment prevails—that is, the technology is taught in terms of the subject rather than in relation to meeting a particular problem or a typical vocational situation. The frequent use of texts, as already indicated, would lead to the expectation of such treatment. The fact that teachers themselves have been prepared in subject rather than problem or job terms makes also for the probability. Further, that the fact exists is the report of supervisors and observers apart from those employed in the survey. Now, such treatment in the case of boys, nine out of ten of whom have actual farm experience, as the data on pupils reveal, is by no means futile teaching. Further, as appears in the reports on teaching observed, if continual reference and check in terms of the pupils' own experience be made, it may be rather good teaching—

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certainly better than that in most academic subjects. But there is no better founded principle of good teaching than this: "Put together those things you expect to function together." If technology is to function in connection with operations in farming, if science is to function in giving insight and appreciation of farm jobs, then technology and science, in the best teaching, must be taught in connection with farm operations and farm jobs. Some teachers, it is clear, are doing that sort of teaching. At present the supervisory and teacher training agents are moving strongly to the securing of such teaching. Most clearly their influence appears in the organization of submitted course outlines, many of which before approval, are organized in terms of farm operations and farm jobs. The evidence is not that the teaching of scientific technology in agriculture is bad—relatively, it is good—but that considerable room for improvement in the making of usable connections or associations exists.

The influence of academic tradition is again evident in reply to the following question: "How do you determine that a pupil knows what you have tried to teach him of technology?" to which 57 teachers made answer. Some teachers are using several methods of testing so that the frequency indicated surpasses the number of teachers.

By tests, quizzes, examinations (written)	40
By pupils' work in recitation and discussion	24
By observation of method and attitude in farm work and the solving of farm problems	12
By requirement of tests in practical application	10
By observation of project work	9

The latter three indicate the sounder procedure. No test of possession of usable knowledge is safer than the display of ability in situations requiring use of that knowledge. Considerable effort and ingenuity may be required of the teacher to bring the pupil into such situations, but with shop work, laboratory work, field work, and the home project established forms of teaching, the possibility exists, and it is to be hoped that tests in practical application will more and more take the place of written and oral questioning for determination of the pupil's possession of appropriate vocational technology. If he does not manifest it in the situations where it is

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called for, then, so far as vocational teaching is concerned, he has not been taught it, regardless of what he may say or write.

Social Abilities

There is a group of abilities quite as important in life as those demonstrated in control of things through manual skills, and in understanding and use of ideas or symbols of ideas, namely, abilities in dealing with persons. To get some indication as to how far such abilities are considered by teachers, in cases where they are manifestly of vocational significance in agriculture, the following questions were asked of teachers: (1) "Do your boys get experience in buying from persons directly? (2) Do your boys get experience in selling to persons directly?" To both questions 58 replied yes; 5 no. The answers are distinctly encouraging, though the amount of such experience is varied and, on the whole, small.

The experience in buying and selling was almost exclusively through the home projects. The project was reported as the source of experience in 57 cases, other forms in one.

The frequency of buying experiences is as follows:

Purchasing seed	30
Purchasing feed	16
Purchasing stock	11
Purchasing fertilizer	9
Purchasing eggs for hatching	9
Purchasing live chicks	5
Purchasing farm products for resale	1
Purchasing machinery	1
Renting land	1
Purchasing clothes	1

All of them but the last are abilities vocationally appropriate.

Selling experiences classify as follows:

Selling eggs	12
Selling crops	11
Selling poultry	7
Selling stock	7
Selling milk	2
Selling pork	1
Selling honey	1

Many teachers did not specify beyond the project, so that the actual frequency of like items both in buying and selling is much

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higher. In the field of buying and selling abilities, as well as in that of vocational responsibility, the project fills a place that is not filled at present by any other form of teaching.

Another group of social abilities important in vocation is not so well taken care of. It is difficult to provide for the boy experience in the management of labor on the farm, but less so to provide experience as employee. Most boys as adult renters or owners will need some ability in managing labor, and will seldom be in the position of employee; but most boys before they can become renting or owning operators of farms must pass through a more or less prolonged period of employment. Hence both forms of experience are probably valuable for boys who prepare to become farmers of one sort or another.

Some boys of the class were reported as getting experience of managing labor in 21 cases.

All boys in the class gained some experience of the sort in 9 cases.

No boys gained such experience in 33 cases.

The place of experience in managing labor was specified in only 15 cases, 9 in the management of the project (mainly in harvesting time) and 6 in the management of the home farm for a time.

Experience as employees was more general, though the type of work is not specified in the majority of cases.

All boys had some experience as employees	38
Some have had such experience	15
None have had such experience	10
Boys worked "for hire"	36
Worked at farming for hire	16

Reports from a majority of pupils in each of the 66 schools surveyed indicate somewhat more definitely the state of affairs in the matter of employment experience. Of 947 boys replying to the questionnaire card, 576 had worked at varied farm jobs for hire, 8 at haying only, 8 at caring for poultry only, and 15 at gardening only, a total of 607 who had worked at farm work as employees; 178 had worked as employees in non-agricultural vocations; 162 had never worked as hired employees.

	Number	Percent
Employees on farms	607	64.09
Employees in other vocations	178	18.79
Never employed for pay	162	17.12

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Two boys out of three, then, have worked as employees at farm jobs, four boys out of five at some hired work, and less than one boy in five was without experience in working for a paying employer.

Fifty-nine teachers replied to the question "Do your boys get experience in vocational coöperation?"

Some, 21; very little, 28; none, 10.

Certain of the forms of such experience represent genuine co-operative (or associational) experience, others do not. Those regarded as most significant are placed first, those as less so, last.

MORE SIGNIFICANT FORMS

Coöperation in purchase of supplies	11
Coöperation in marketing eggs	10
Coöperation in marketing milk	2
Membership in Farm Bureau and Dairymen's League	3
Membership in Agricultural Club	1

LESS SIGNIFICANT FORMS

Coöperating in harvest of project crops	7
Performing a group job in shop or field	9

LEAST SIGNIFICANT

Using machinery turn about	5
Helping father on the farm	1

The forming of marketing and purchasing associations among boys in the project work is one of the most promising ways of accomplishing the result of giving coöperative experience. That some beginning has been made is encouraging.

"Do you make rating or judgment of boys in such abilities? *i. e.*, buying and selling, coöperating.

Yes, 15; no, 34; no answer, 14.

"How?"	By observation of project and farm work	9
	By careful check of accounting records	4
	By interest and activity of boys	1
	By "my feeling" about the boys	1

Such abilities are, of course, very difficult to rate, because of lack of control of the most essential factors that enter in. But

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certainly they are not more difficult than "attitudes and appreciations," to which, in technology, some heed is given by teachers. Apparently agricultural teachers, like other teachers, have not been acutely conscious of the significance of such abilities. That a few are giving them definite attention is a hopeful sign for the improvement of agricultural instruction.

Consideration of Risks

To discover indications of the extent to which agricultural teachers give consideration to moral and physical risks in the case of their pupils three questions were asked, all with regard to matters of considerable vocational importance.

The majority of farmers will be concerned from time to time with the management of male and female stock in breeding service. Such animals must be handled so that injury comes to neither nor to the attendant. Again many farmers must handle vicious or intractable animals of great strength. Again, many farmers must engage from time to time in heavy or prolonged manual labor. Though these are vocational necessities, there is certainly risk in attempt to train adolescent boys to meet them.

Group teaching, for example, in the first case, is almost certainly unnecessary, and is undesirable for two reasons. To the cloistered youth there is undoubted moral shock in such a proceeding, normal as the act itself may be; on the other hand, boys brought up to a knowledge of sex through the tales of hired men and the whispered filth of the school yard may find suggestive stimulus that is unwholesome. The individual home project with live stock and the ordinary matter-of-fact experience of the home farm probably will take care of such matters without class instruction.

The opinions of teachers and their reasons for and against class teaching of the sort are of interest. "Would you ever take a group of boys to witness the service of a mare or cow?" Yes, 11; no 52.

Reasons for doing so:

Farm boys should understand such matters	6
Boys in dairying must handle animals	4
Mature boys may profit by demonstration of proper handling	1

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Reasons for not doing so:

Unnecessary because of home experience	13
Better taught through individual project	7
Boys understand principles already	6
Not desirable with boys of high school age	12
A doubtful or risky proceeding	10
Pernicious influence likely	4
Would rouse antagonism of parents	4
Not the teacher's responsibility	1
Not an important matter	5

"Have you required or would you require a boy to handle a mature bull, boar, or vicious horse?" Yes, 2; in special cases, yes, 8; no, 53.

Reasons given for requiring such handling indicate that permitting rather than requiring is in mind.

Reasons for doing so:

If the boy were strong and active and knew the danger	2
A matter of choice with the boy	4
No reason given	4

Reasons for not doing so:

Risk of injury too great	24
Most boys insufficiently mature and strong	13
Benefits incommensurate with risk	7
Unnecessary in view of home experience	5
Observation of handling sufficient	3
Teacher should avoid such responsibility	6
Parents would rightly object	4

It is fairly evident that no teacher would force a boy into a position of known physical peril merely for the acquirement of a probably useful skill.

The third question was variously interpreted so that the attitude of teachers toward a possible overtaxing of pupils is not so clear as their attitude in regard to moral risk and physical danger.

"Have you exempted or would you exempt certain boys from farm work required of others?"

Have not thus far exempted any	25
Would exempt if need arose	36
No answer	2

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Reasons for not exempting:

All pupils take the same course	3
All pupils need practical experience	2
Exemption would rouse jealousies	1
No cause for exemption yet met	2

Reasons for exempting:

Boys who lack place or material for work	10
Some boys already proficient	5
Different occupations call for different requirements	7
If present project gives experience special practice not required	7
Because of physical inability	26

Cases of exemption cited:

Pupils disabled	5
Pupils with weak hearts	7
Pupils lack strength or size	13
Boys expecting to be general farmers exempted from special occupational practice	3
Boys already qualified	4
Boys away for summer excused from project	3
Boy allowed to use small area in lack of larger	1
Boy allowed to hire labor while boarding	1

Evidently physical well-being is not neglected. The reasons for not exempting, except the last, will not bear examination. On the other hand, certain reasons advanced for exemption if difficult to avoid are unsound educationally. A boy who hires another to do his work does not profit in training from that work. The boy who carries no project loses a most important part of his education in agriculture, and, further, under the present law has no right to admission or credit in the agricultural course. The first reason, given ten times, reveals a weakness in present organization. If certain practical work is desirable or necessary for vocational training, and the boy at home has not the place and material for doing it, then the place and material should be furnished through the agency of the school. The case of village boys is being cared for under present policy by permitting the substitution of supervised employment on an approved farm for the usual animal or crop projects carried by farm boys.

The data submitted give reasonable ground for the conclusion that on the whole those boys to whom the agricultural work is accessible are being rather well and intelligently taught.

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CHAPTER V

TEACHERS OF AGRICULTURE

Classes

NO SCHOOL within the scope of the study employed more than one teacher of agriculture. Of the 66 teachers employed, 41 serve as departmental teachers in high schools; 25 act as principals as well as teachers—21 in high schools, four in intermediate schools. Departmental teachers of agriculture have the same duties in the school as departmental teachers of other subjects, barring study hall supervision, but give no instruction in subjects other than agricultural. Such instruction is first and uniformly for regularly matriculated pupils of the high school; second, and almost as uniformly for pupils of grade eight and sometimes of grade seven also in the elementary schools under the form of "junior project" work, not vocational in its aims, but contributing in some measure to vocational guidance in agricultural fields; third, the conduct of special and short courses for non-matriculated students above the age of fourteen—a field of teaching advocated for several years by state policy, but thus far developed in very few cases.

Principals in high schools add to such duties those supervisory and administrative common to principals of high schools, but give no instruction in subjects other than agriculture. Principals of intermediate schools are teachers of agriculture, as above, and teachers of other subjects as well, and add the duties of the principalship.

Salaries

The salary distribution among the 66 teachers for the year 1920–21 is shown in the table below.

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Amount	Departmental teachers	Principals of high schools	Principals of intermediate and junior schools
$1600	0	0	2
1700	6	0	1
1750	1	1	0
1800	9	1	0
1850	1	0	0
1900	2	0	0
1950	0	1	0
2000	9	3	1
2050	1	1	0
2100	4	0	0
2150	1	0	0
2200	2	1	0
2300	1	2	0
2350	0	1	0
2400	2	4	0
2500	0	2	0
2600	1	2	0
3000	1	2	0
Totals.....	41	21	4
Median, $2000	Median, $2000	Median, $2350	Median, $1650

Note: The salaries of intermediate school principals fall in the lowest quartile of all salaries.

The salary schedule is not quite comparable with that for all men teachers in high schools or for all high school principals in places of under 4500 population, since the agricultural men are employed for twelve months in the year, forty-eight weeks of employment, as against the forty weeks of other teachers and principals, and in addition, in most cases, must maintain an automobile or other means of travel for supervision very largely at their own expense. The cost of such travel is estimated at a norm of $250. Few communities allow more than the minimum state requirement for travel, $50.00, and the more active teachers incur relatively high expenses for this item. No consistent records are available. But even with the longer period of employment and travel expense incident to the nature of teaching, it is safe to say that agricultural teachers and principals are the best paid group in the rural schools. The range for rural high school principals is from $900 to more than $3000, but the median

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salary is $1700. Other high school teachers, 91 percent women, show a range of from $750–$2500, with a median at $1200. All are employed for the academic year only.

Qualifications

That they are paid more highly than men of equal technical and professional preparation it is not possible to state, for the agricultural group stands well above the norm for all high school teachers in those qualifications. Seventy-four and two-tenths percent of all teachers and principals are college graduates; 78.1 percent of the teachers in departments, 70.8 percent of the principals. Graduates of agricultural colleges are 73.2 percent of the departmental teachers, 50 percent of the principals. Of rural high school principals, 56.9 percent are college graduates; of other teachers, 64.16 percent. The total staff of rural high schools in terms of preparation divides as follows: College graduates, 62 percent; one to four years in college, 9.37 percent; normal school graduates, 19.73 percent; one to two years normal work, 2.16 percent; high school work, only 7.72 percent.

Scholastic Preparation, Agricultural Staff	Teachers of departments	Principals also teachers of agriculture
B.S., New York State College of Agriculture	19	9
B.S., N. Y. S. C. A., plus 1 year's graduate study, N. Y. S. C. A.	2	0
B.S., N. Y. S. C. A., plus 2 summers' study, N. Y. S. C. A.	1	0
B.S., N. Y. S. C. A., plus 1 summer's study, N. Y. S. C. A.	1	0
B. S., N. Y. S. C. A., after graduation at state normal school	0	1
B.S.A., College of Agriculture, Syracuse University	3	0
B.S.A., College of Agriculture, Syracuse University, plus 1 year's graduate study, N. Y. S. C. A.	0	1
B.S.A., College of Agriculture, Syracuse University, plus 1 summer's study, N. Y. S. C. A.	1	0
B.S. or B.S.A., other state colleges of agriculture	3	1
B.S.E., Univ. of Ill., plus 1 year's graduate study, N. Y. S. C. A.	0	1
Ph.B., Alfred Univ. plus 2 years State School of Agriculture	1	0
B.A., Amherst College, plus 1 year agricultural school	0	1
B.A., other colleges, plus 2 years in agriculture, N. Y. S. C. A.	1	2
B.A., Colgate, plus 1 summer agriculture, N. Y. S. C. A.	0	1
Graduate former agricultural course, Cortland Normal	4	4
Graduate former agricultural course, Cortland Normal, plus 1 summer, N. Y. S. C. A.	2	0
Graduate other state normal schools, plus 3 summers, N. Y. S. C. A.	1	2
Carried forward	39	23

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Scholastic Preparation, Agricultural Staff	Teachers of departments	Principals also teachers of agriculture
Brought forward	39	23
Graduate other state normal schools, plus 2 summers' study, N. Y. S. C. A.	1	0
Graduate other state normal schools, plus 3 years, College of Agriculture, Syracuse University	0	1
Graduate other state normal schools, plus 1 year, College of Agriculture, Syracuse University	0	1
Graduate State School Agriculture, plus 2 summers, N. Y. S. C. A.	1	0
Totals	41	25

Sixty-three of those men reporting in answer to a questionnaire have had the following professional preparation:

Professional subjects indicated for certification 1. Educational psychology 2. Principles of teaching 3. Methods of teaching agriculture 4. Practice teaching in agriculture	Principals	Department teachers
Those who have studied subjects 1, 2, 3, and 4	2	3
1, 2, and 3 plus psychology	0	2
1, 2, and 3 plus school administration	1	1
1, 2, and 3 plus school discipline	1	0
1, 2, and 3	12	16
1 and 2	3	3
1 and 3	1	6
2 and 3	1	2
1, 2, and 4	0	1
3 and 4	0	1
2	0	1
3	1	1
No professional studies	0	4
	22	41

SUMMARY

1. Educational psychology		22	30
2. Principles of teaching		20	29
3. Methods of teaching agriculture		21	33
4. Practice teaching in agriculture		2	5
Other professional subjects		2	3
Percent studying four subjects	15.9	18.6	14.6
Percent studying three subjects	46.0	54.5	41.4
Percent studying two subjects	26.9	22.7	29.3
Percent studying one subject	4.8	4.2	4.9
Percent studying no subject	6.4	0.0	9.8
	100.0	100.0	100.0

In professional training, then, the group as a whole stands relatively high, with the advantage somewhat in favor of the principals as against the strictly departmental teachers.

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Teaching Experience

The following table shows the years of teaching in high school or any school above the elementary grades in which 65 teachers distribute for the year 1920–21:

Year of teaching	All	Principals	Departmental teachers
1	5	1	4
2	7	2	5
3	12	3	9
4	20	7	13
5	7	2	5
6	7	3	4
7	2	2	0
8	1	0	1
13	1	1	0
15	1	1	0
17	1	1	0
18	1	1	0
	65 Median year, fourth	24 Median year, fourth	41 Median year, fourth

Although half the principals are in their fourth year of teaching or below, and half in the fourth year or above, yet the principals show a greater range and proportion above, and a less proportion below the fourth year than the departmental teachers. As a group, they are somewhat more experienced in high school teaching as well as somewhat better prepared professionally. Median for all rural high school principals, tenth year; for other teachers, third year.

Technical Training

On the basis of the State course of study the questionnaire asked for a statement of special training through college study, college study and special farm experience, and special farm experience only in the subjects of the high school course. (Through an error, Fruit Growing was omitted from the list.)

The question was intended to discover that particular "speciali-

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zation in one field," which is referred to in the divisional statement concerning qualifications of teachers. To be specially qualified in dairy husbandry, for instance, in a dairy section, is a desirable adaptation in a teacher's placement and service. But, though "such as major interest in college" was suggested, the question has been very generously interpreted by teachers, particularly the principals. Eighty-three percent of all report specialization in four subjects or more, the median number of subjects is six, and 25 percent report special training in eight or more subjects. Thus the results are to be interpreted as very nearly representing all but the most general and elementary instruction or experience in each of the subjects. The deficiencies discovered may not be total deficiencies in every case, but they are highly significant indices of strength and weakness in technical qualifications.

	Principals		Departmental teachers	
POULTRY HUSBANDRY	Percent		Percent	
Reporting college study only	43.5	10	47.5	19
College and special farm experience	13.0	3	15.0	6
Special farm experience only	17.4	4	12.5	5
No technical training of a special nature	26.1	6	25.0	10
	100.0	23	100.0	40
VEGETABLE GARDENING				
College study only	17.4	4	22.5	9
College study and special farm experience	4.3	1	5.0	2
Special farm experience only	39.1	9	17.5	7
No technical training of a special nature	39.1	9	55.0	22
	100.0	23	100.0	40
FARM SHOP WORK				
College study only	25.4	6	20.0	8
College study and special shop experience	0.0	0	10.0	4
Farm and shop experience only	30.4	7	12.5	5
No technical training of a special nature	54.2	10	57.5	23
	100.0	23	100.0	40

Poultry and shop work are taught in all schools and to the largest numbers. Vegetable gardening is taught in most schools to the beginning classes. The deficiency in poultry and vegetable gar-

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dening may not be as serious as it appears. On the whole, teachers are as well prepared as they need to be in those fields, when in most communities only the home garden and the farm flock need be considered. Nevertheless, a marked deficiency exists where one teacher in four lacks even special experience in managing a flock and one in three in managing a garden. The transfer of knowledge and skill from animal husbandry and farm crops is hardly enough to make for skilled teaching in these enterprises.

Farm shop work in wood, metal, harness repair, and other work of construction and repair is an important and required feature of the teaching in every school. More than half the teachers lack formal training and other than incidental experience in such work. The deficiency is known to the state office and steps have been taken to remedy it. The teachers' training course at the New York State College of Agriculture now offers and requires special instruction in farm shop work for all matriculants. During half the year an instructor from the college travels among the teachers giving aid in the organization and conduct of the course in high schools. Technically, here is the most serious weakness in the qualifications of teachers and principals alike. The older teachers totally lack special training, though most of them have, under the necessity for teaching, developed skills of the routine order. As will be noted under "Observation of Teaching," the least creditable work of the teacher is exhibited in a field of teaching affecting the largest number of boys, and one which, because of the material products observable, is likely to be that in which his community judges most frequently of his success.

Farm crops	Principals		Departmental teachers	
College study only	30.4	7	30.0	12
College study and special farm experience	8.7	2	15.0	6
Special farm experience only	39.1	9	20.0	8
No technical training of a special nature	21.8	5	35.0	14
	100.0	23	100.0	40

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The work of the second year of the course centers about farm crops and the control of them through soils management. The importance of crops in most communities is paramount, and the deficiency appears large, as in the case of vegetable gardening and to a less extent poultry. Normal school and sometimes State school programs do not include special courses in these subjects, but rather general elementary courses. In the summer work of the college of agriculture only elementary courses are likely to be offered. The college man may not report such studies as special preparation, though it appears that the normal school man does so, and is also more likely to consider that farm experience alone has given him special training. The differences in technical training between principals and departmental teachers is roughly proportionate to the difference in degree of college training. But if the factors above mentioned are operative, as in the judgment of the reader of questionnaire replies they are, then the advantage of the departmental teachers over principals is greater than the figures reveal. The same difference appears to hold roughly throughout the course requirements in agricultural subjects, with few exceptions.

	Principals		Departmental teachers	
ANIMAL HUSBANDRY	Percent		Percent	
College study only	43.5	10	30.0	12
College study and special farm experience	8.7	2	17.5	7
Special farm experience only	30.4	7	7.5	3
No technical training of a special nature	17.4	4	45.0	18
	100.0	23	100.0	40
DAIRY HUSBANDRY				
College study only	34.7	8	27.5	11
College study and special farm experience	4.3	1	17.5	7
Special farm experience only	17.4	4	22.5	9
No technical training of a special nature	43.6	10	32.5	13
	100.0	23	100.0	40

In most regions of the State dairy husbandry will be a major enterprise of farming, and there would seem to be need of special training in that field, as in the related field of farm crops. For most sections swine raising, sheep raising, horse raising, are minor

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enterprises. Thus, viewing the State as a field for teachers, the deficiency in dairy husbandry is probably more serious than that in animal husbandry. Fewer boys take the subject, since it is placed in the third year, than take the relatively unimportant vocational work in poultry.

Fruit growing is a feature of third-year work in all schools, but unfortunately was omitted from the list. Eleven men reported special qualifications in fruit growing.

Agricultural engineering	Principals		Departmental teachers	
	Percent		Percent	
College study only	34.8	8	17.5	7
College study and special farm experience	0.0	0	10.0	4
Special farm experience only	4.3	1	12.5	5
No technical training of a special nature	60.9	14	60.0	24
	100.0	23	100.0	40

Agricultural engineering as a fourth-year study as yet reaches a relatively small number of boys. Its significance, however, in farm operations in most types of farming is large. There is a considerable technology and a technique with regard to engines particularly, now made available to agricultural college students, and required in the teacher training course at the New York State College of Agriculture, which is evidently not in possession of the older college graduates and the normal school men. Along with that in farm shop provision for this deficiency deserves serious consideration.

Farm management	Principals		Departmental teachers	
	Percent		Percent	
College study only	60.9	14	35.0	14
College study and special farm experience	4.3	1	7.5	3
Special farm experience only	17.4	4	17.5	7
No technical training of a special nature	17.4	4	40.0	16
	100.0	23	100.0	40

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Relatively few boys have as yet reached the stage of instruction in farm management. Considering the recent development of the technology and its requirement of prospective teachers, the showing is encouraging. That principals have the advantage of departmental teachers in this field of technology is probably accounted for by the fact that it is a regularly offered summer course at the New York State College of Agriculture by the country's foremost department and is, accordingly, one of the first courses to be taken up by men returning to college for summer work, as the principals so largely have done.

As an index to the frequency with which boys are taught the various subjects of the course the following table covering the past six years is significant. Even in the older schools two boys in three are enrolled for the work of the first two years.

NUMBER SCHOOLS OFFERING WORK OF THE SUCCESSIVE YEARS

Date	First year	Second year	Third year	Fourth year
1915–16	42	26	23	13
1916–17	38	39	24	19
1917–18	40	26	24	19
1918–19	30	31	18	19
1919–20	44	23	33	11
1920–21	47	48	22	32
Total.....	241	193	144	113
Percentage....	34.88	27.93	20.85	16.54

In connection with the organization of the course the figures must be noted. That minor subjects of the first year particularly reach by far the largest number of pupils is, under a vocational hypothesis, a token of maladjustment.

FARM EXPERIENCE

The data of farm experience of teachers in the field are not well recorded at the Albany office, but it is possible to indicate the general scope of it. The State's requirement of two years of farm experience is lived up to more strictly than that of graduation from a recognized college of agriculture or an "equivalent" technical

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preparation, except "equivalent" be very generously interpreted, as it has been under pressure of shortage of teachers during the war years. Assuming that the statement, "brought up on a general farm," indicates from six to ten years of actual participation in farm work, a not very certain classification of the farm experience of agricultural teachers has been worked out. The type of experience is worked out from statements like the following: (1) "General, poultry, and fruit farm, ten years." (2) "General farm four years, poultry and truck farm one year, dairy farm two years." Each type mentioned is reported separately.

Farm experience in years	Principals	Departmental teachers	All
16 or more	1	1	2
11–15 inclusive	0	7	7
6–10 "	19	29	48
5	1	2	3
4	0	1	1
3 years	0	1	1
8 summers	1	0	1
6 summers	1	0	1
	23	41	64

KINDS OF EXPERIENCE BY TYPES OF FARMING SPECIFIED

	Frequencies		
	Principals	Departmental teachers	All
General (diversified crop and stock)	17	26	43
Dairy farming	5	11	16
Fruit farming	5	11	16
Poultry farming	4	2	6
Market garden and truck	2	2	4
Small fruit	1	1	2
Cotton growing	1	0	1
Live stock ranch	0	1	1
Reporting experience as farm operator	1	5	6

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Preparation in Science

It is important in vocational teaching that an insight and appreciation of the implications of the vocation and its jobs socially and in terms of science be developed; and, further, that the teachers shall be able to follow the social and scientific interests of pupils to a point at least that leads to a close touch with studies under other teachers in the high school. As an indication of potential ability to do this thing, data were sought in regard to preparation in certain social, physical, and biological sciences in greater or less degree related to agriculture, through the questionnaire. Teachers were asked to report the place of study, college (including normal schools), and secondary schools.

Economics	Principals		Departmental teachers	
	Percent		Percent	
Studied in college only	60.9	14	72.5	29
Studied in college and secondary school	0.0	0	5.0	2
Studied in secondary school only	26.1	6	15.0	6
Not studied under formal training	13.0	3	7.5	3
	100.0	23	100.0	40

The influence of the common requirement of economics in college courses is shown here. That teachers trained in economics in secondary school only are sufficiently qualified to meet the requirements set above is doubtful.

Sociology	Principals		Departmental teachers	
	Percent		Percent	
Studied in college only	26.1	6	22.5	9
Studied in college and secondary school	0.0	0	0.0	0
Studies in secondary school only	0.0	0	10.0	4
Not studied	74.9	17	67.5	27
	100.0	23	100.0	40

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Studies in sociology, rural and other, have only recently been made part of the program of studies of the agricultural colleges. Work in that field is now a requirement of the teacher training curriculum at the New York State College of Agriculture. Only recent graduates, however, have benefited by the course. Probably the preparation here will compare favorably with that of any group of high school teachers, but the deficiency is still large.

STUDIES IN PHYSICAL AND BIOLOGICAL SCIENCES

Chemistry	Principals		Departmental teachers	
	Percent		Percent	
Studied in college only	52.2	12	45.0	18
Studied in college and secondary school	21.7	5	22.5	9
Studied in secondary school only	26.1	6	25.0	10
Not studied	0.0	0	7.5	3
	100.0	23	100.0	40

The lack of college training on the part of some teachers is manifest here. It is surprising, however, that any men at all should be teaching agriculture without an elementary knowledge of chemistry, and that one in four should be teaching with only an elementary knowledge of it.

Physics	Principals		Departmental teachers	
	Percent		Percent	
Studied in college only	39.1	9	27.5	11
Studied in college and secondary school	30.4	7	27.5	11
Studied in secondary school only	21.7	5	42.5	17
Not studied	8.7	2	2.5	1
	100.0	23	100.0	40

Perhaps physics is less manifestly related to the problems of agriculture apart from shop work and engineering than chemistry.

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An elementary knowledge is probably sufficient for class purposes, but the teacher so limited will be taxed by the inquiring exceptional pupil, who is entitled to guidance. Three men, again, are teaching without knowledge of one of the fundamental sciences.

Botany	Principals		Departmental teachers	
	Percent		Percent	
Studied in college only	43.5	10	45.0	18
Studied in college and secondary school	21.7	5	22.5	9
Studied in secondary school only	21.7	5	27.5	11
Not studied	13.0	3	5.0	2
	100.0	23	100.0	40

Physiological botany is of great service in enlightening students of agriculture. Morphological botany, the type usual to the secondary school, much less so. One teacher in three then is limited or totally deficient in resources here.

Zoölogy	Principals		Departmental teachers	
	Percent		Percent	
Studied in college only	39.1	9	27.5	11
Studied in college and secondary school	8.7	2	15.0	6
Studied in secondary school only	30.4	7	25.0	10
Not studied	21.8	5	32.5	13
	100.0	23	100.0	40

Systematic zoölogy is of very little use in the teaching of agriculture if the biologic evolutionary viewpoint have been otherwise acquired, as it usually is in college courses. The fact, then, that three men out of five are not educated beyond the most formal and elementary stage in this field is not very significant from the viewpoint of successful teaching of vocational agriculture.

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Physiology (including animal physiology)	Principals		Departmental teachers	
	Percent		Percent	
Studied in college only	30.3	7	30.0	12
Studied in college and secondary school	17.4	4	15.0	6
Studied in secondary school only	43.5	10	52.5	21
Not studied	8.7	2	2.5	1
	100.0	23	100.0	40

Physiology among the biological sciences compares with chemistry among the physical in giving resource to the teacher of agriculture. Probably the showing here is not so weak as it seems, since in feeding courses a good deal of rather fundamental physiology is developed. But the non-college men appear to be handicapped.

Geology	Principals		Departmental teachers	
	Percent		Percent	
Studied in college only	39.1	9	57.5	23
Studied in college and secondary school	4.3	1	10.0	4
Studied in secondary school only	30.4	7	10.0	4
Not studied	26.1	6	22.5	9
	100.0	23	100.0	40

In terms of vocational efficiency knowledge of geology is probably not very significant for the farmer. In terms of vocational insight and appreciation, through its relation to soils and topography, it may mean a good deal to the exceptional man. In college courses in soils a good deal of geologic information, often beyond that obtainable in geology courses in secondary schools is developed, so that the agricultural college graduate, who practically always takes such courses, is not likely to be handicapped, even if he have not studied geology. The deficiency here is much less significant than in chemistry.

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A comparison between professional preparation and technical preparation of agricultural teachers is not very significant even were it possible to make a fair one. More than 90 percent of all teachers, and of either group, have pursued some professional studies, 85 percent have pursued studies directly pertinent to the teaching of agriculture in the high school. On the other hand, 100 percent have had some technical training in agriculture, and all have had farm experience. But in terms, even, of the general subjects of the course which they are supposed to teach, deficiencies are outstanding. That men should be accepted as qualified to teach farm shop work, farm crops, dairy husbandry, agricultural engineering, etc., who have had no preparation for such work, is a distinct menace to the success of vocational teaching. That we have a parallel in the case of other teachers in the high school is no justification.

Desirable Requirements

It is not now possible for a man to graduate from the approved teacher training curriculum at the New York State College of Agriculture who has the subject deficiencies discovered above. But it is not yet required that a teacher approved for State aid shall meet all those requirements. If he can present evidence of two years' experience in farming, even though that experience be on a market garden farm, and that he is a graduate of an agricultural college, having studied methods of teaching, he may be approved if the local board desires to appoint him to teaching in a dairy region, even if he has made no study of dairy husbandry as such and has no farm experience in dairy work. It would seem that specific qualifications in experience, in college study, and in professional study, in terms of the State course plan, should be the minimum qualification required for approval and granting of State aid.

A further modification of qualifications necessary seems clear. A man going into a fruit growing community, for instance, or into a truck-raising community, should be required to give evidence of particular ability to teach fruit growing and truck growing respectively.

The present standards of approval are undoubtedly much in advance of those five and ten years back, if they do not quite keep pace with the provisions for training of teachers. The vagueness of

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former standards in terms of content of preparation, the pressure to fill all possible positions in earlier days, and particularly the attempt to make up for the deficiency of teachers through the period of the war account for the status revealed. Undoubtedly many of the men now in the field, whose training shows marked deficiency on the paper record, have, under the stimulus of the necessity for teaching, made up through their own initiative in study a considerable portion of their deficiencies. But that their opportunities, through summer courses and others, to make up technical as well as professional deficiencies, should be increased, is certain; that known deficiencies be made up insisted upon, vital, if the pupils enrolled in agriculture are to have the opportunities to which they are entitled.

The supervisory agents are at present very much alive to the necessity for meeting the professional requirements, but with respect to specific technical requirements, as indicated by the general plan of the job of the agricultural teacher in this State, much less so. A candidate now must give evidence that he has pursued professional studies pertinent to the teaching of agriculture before entering upon his work, but he is not yet required to give evidence of specific technical subject preparation.

Undoubtedly there is administrative difficulty in maintaining a standard specifically appropriate even to the course program. Local school boards often have their strong preferences, not merely in terms of the lower priced candidate. But that any school board has the right to appoint a man known not to be qualified for the teaching which they propose to inaugurate or have already on the program is doubtful. Certainly under a State policy of aid to enlarge educational opportunities none should be granted to a community which knowingly chooses the unqualified as against the qualified man. A memorandum or other distinct record of understanding with school boards, making clear that a teacher qualified specifically to teach those subjects for which the accepted course calls, is quite as definitely a necessity in meeting requirements for aid as a certain sized room, a certain list of tools, and a certain minimum enrolment, might be of help. That the State is extending an opportunity rather than limiting a bonus will probably be made more generally clear than formerly under the newly adopted

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plan of preliminary conference and survey study already referred to. Pupils are entitled to as nearly a "full loaf" as the supply of qualified men permits.

Teachers' Evaluations of Preparation

In reference to the utility of specific preparation in technical subjects, 60 of the 63 teachers replying to the questionnaire make the positive assertion that it has been of help to them, three do not answer the question.

Asked as to the specific subjects in the professional field which had proved helpful in their school work, replies were as follows:

Taking the subject	Report it helpful	Percentage
Educational psychology, 52	28	53.8
Principles of teaching, 49	34	69.2
Teaching of agriculture, 54	38	70.4
Practice teaching, 7	5	71.4

Asked as to which of the sciences were helpful in laying out the work of teaching, replies were as follows:

Taking the subject	Report it helpful	Percentage
Economics, 57	43	75.4
Sociology, 19	15	78.9
Chemistry, 58	58	100.0
Physics, 60	54	90.0
Botany, 58	57	98.3
Zoölogy, 46	34	73.9
Physiology, 60	39	65.0
Geology, 48	43	89.5

Not all the replies were very discriminating in the last case, about half the teachers giving the reply "all" as referring to the sciences studied. Nevertheless, it is interesting to note the high values set, particularly on chemistry, physics, botany, and geology, and the relatively low value on physiology. The surveyor attributes

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this latter low valuation to the fact that so many teachers studied only the human physiology of the public school.

Reported Deficiencies

In reply to the question, "What deficiencies, if any, in training, agricultural or professional, stand out most clearly in your present job?" the replies are classified as follows:

	Principals	Departmental teachers	All
Professional Deficiencies			
Lack of professional training	2	3	5
Lack of training in project teaching	3	0	3
Lack of training in teaching methods	2	3	5
Lack of training in planning work	0	4	4
Lack of training in supervision	1	0	1
Lack of educational psychology	1	1	2
Lack of practice teaching	0	1	1
Lack of specific application in professional subjects	0	1	1
Technical Deficiencies			
Lack of training in agricultural engineering	2	3	5
Lack of training in farm shop work	3	2	5
Lack of training in farm management	1	2	3
Lack of training in farm crops	0	2	2
Lack of training in vegetable gardening	0	1	1
Lack of training in soils	1	0	1
Lack of training in chemistry	0	1	1
Lack of training in poultry	0	1	1
Lack of training in animal husbandry	0	2	2
Lack of training in animal diseases	0	1	1
Lack of training in grape growing	0	1	1
Lack of training in entomology and pathology	0	1	1
General lack of agricultural training	4	1	5
Too narrow an agricultural training	1	0	1
Lack of practical work in college training	0	3	3
Other Deficiencies and Difficulties			
Lack of college education	1	1	2
Laziness	1	1	2
Lack of interest in the teaching side	1	0	1
Lack of ability to teach practical work in a class room	1	0	1
Inability to play politics	0	1	1
Lack of time for keeping up to date	2	1	3
Lack of time to visit other schools	2	0	2
Conflicting interests as teacher and principal	1	0	1

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Numerous teachers report several deficiencies, but three principals and ten departmental teachers find no deficiencies to report. That there is a very close correlation between deficiencies felt and deficiencies actual is not to be assumed. The relatively unqualified teacher may be unaware of any deficiencies, and the well-qualified teacher acutely aware of what he regards as conspicuous deficiencies. But it is worth noting, in spite of the emphasis that has been given to professional training and the need for it in the supervisory work of the past three years, that the reports of deficiencies in technical preparation outnumber those in professional training. The general proposition that increased attention to technical qualifications is desirable is supported by the judgment of the teachers.

In reply to the question, "Of what use is your knowledge of them [the sciences] to your pupils?" nine teachers indicate only a belief in their utility, the rest answer under the following classification, one teacher often giving several suggestions:

Gives the teacher resourcefulness in answering the question "why?"	51
Gives pupils confidence in the teacher's knowledge	20
Assists pupils to correlate their practical problems with science	12
Enables them to establish a basic understanding of farm problems and practices	6
Stimulates pupils to growth in knowledge	2
Enables the solution of practical problems	6

There seems to be confirmed here the already implied belief of teachers in the utility of preparation in the sciences as an aid to vocational teaching in agriculture.

Professional Improvement

Concerning the chief means at present in use for the improvement of teachers in service teachers were asked: "Do you find the following of real use to you?"

Question	Reply
(*a*) Visits of supervisors?	Yes, 58; No, 3; No ans., 2
(*b*) Visits of teacher training agents?	Yes, 36; No, 4; No ans., 26
(*c*) Conferences on teaching?	Yes, 56; No, 2; No ans., 5
(*d*) The Agricultural Teachers' Bulletin?	Yes, 57; No, 2; No ans., 4
(*e*) Bulletins of the State Dept. of Education?	Yes, 55; No, 2; No ans., 6
(*f*) Publications from Teacher Training Department at Cornell?	Yes, 41; No, 7; No ans., 15
(*g*) Other?	

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Under this head the following were reported:

Current publications in agriculture	7
Current educational publications	5
Publications of Federal Board	3
Reports of conference committees	6
Experience of "dirt farmers"	5

In order to interpret the attitude of teachers toward improvement in service a few words of explanation in regard to each point may be of help.

(*a*) Every teacher in the list, including the most recent appointees, had experienced the visiting of the supervisory specialists. The teachers favor that sort of assistance. Further, among suggestions offered by teachers with reference to supervision the most frequent are that visits should come oftener and last longer.

(*b*) Visits of teacher training agents are less frequent, but ordinarily more prolonged, than those of supervisory specialists. Further, they are confined mainly to the follow-up of graduates of the teacher training course at the State College of Agriculture. Thus the 40 men replying to the question probably represent all who have had such visits. In general such visitors deal with a particular problem or group of problems in which teacher or supervisor has discovered that help is needed. Teachers again are fairly unanimous in acceptance of the worth of this accessory supervision.

In addition to greater frequency and length of visits, suggestions are made that more time of visitors should be given to assistance in project work, and that help should be positively constructive and practical.

(*c*) The regional and annual conferences of teachers have been participated in by all but the most recent appointees. Of suggestions in regard to them, the most common is that they be held more frequently. In addition it is suggested that less lecturing and more continuously active work by teachers are desirable, and that provision for expenses be made on the same basis as is used for attendance of district superintendents upon their conferences.

(*d*) The monthly bulletin for teachers of agriculture, in the form of a four- to eight-page "news letter," with articles professional and technical, is approved. It is noteworthy that with the discontinua-

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tion for lack of funds of that publication in 1921, the teachers' association has undertaken the continuation at its own expense.

(*e*) Bulletins of the State department, mainly those dealing with the administrative organization of a department and the conduct of project work are approved as useful and more of the type are suggested. In addition teachers suggest the preparation of a guide to a yearly reading course in professional and technical publications and the installation of a circulating professional library for teachers of agriculture. One suggests a magazine dealing with the content and method of agricultural instruction.

Nature of work	All	Principals	Departmental teachers
Professional			
Reading and attendance at meetings	7	2	5
Reading and summer school attendance	4	2	2
Work for M. S. degree	3	1	2
Studying school law	1	0	1
Studying school administration	1	1	0
Professional and technical			
Working for B. S. in agriculture	1	1	0
Reading both agricultural and educational	5	3	2
Reading and summer school attendance	2	1	1
Reading and running a farm	1	0	1
Technical			
Farming	2	1	1
Raising poultry and gardening	1	0	1
Raising poultry and studying	1	0	1
Managing a commercial orchard	1	0	1
Reading in agriculture	4	0	4
Taking correspondence course in farm management	1	1	0
Surveying the community	1	0	1
Summer course in gardening	1	0	1
	37	13	24
Percent of all in each group	58.7	56.5	60.0

(*f*) There are no strictly departmental publications under (*f*), so that the question was not wholly appropriate. Reprint circulars

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dealing with teaching methods, however, have been distributed from time to time, and those are evidently in the minds of teachers who make reply to the question.

Teachers were asked to make suggestions with regard to bettering means of professional improvement. The most frequent suggestions were that provision should be made to enable teachers to attend summer sessions at the State College of Agriculture, and that those sessions should include practical and appropriate courses, both professional and technical, whereby teachers may make up deficiencies handicapping them in their work.

Thirty-seven of 63 teachers reported themselves engaged in or having immediately in prospect (May, 1921) work of professional improvement. The reports include both technical and professional studies and other activities likely to add to the proficiency of the teacher.

That three teachers out of five are attempting, in ways additional to those regularly provided by the State system of supervision, to strengthen themselves in their work is further evidence of a good professional spirit among the teachers of agriculture of the State. That, in spite of obvious deficiencies, the teachers of agriculture are, on the whole, a well-selected group, of qualifications technical, professional, and in the teaching spirit, above the norm of teachers in the high schools of the rural communities is fairly evident from the preceding study.

Stability and Tenure

It is not possible, with data available for other high school teachers, to determine how teachers of agriculture compare in their tendency to stay in the same field of work, in the number of changes they have made from school to school, in the maximum tenure and minimum tenure in any one school, and in length of tenure in the present position. Certainly the turnover of agricultural teachers has been rapid, particularly during the period of the war, but there is no present means of telling whether it has been more or less rapid than with other men in high schools.

Of 76 teachers engaged in the teaching of agriculture under State and Federal aid and approval in New York, May, 1921, the follow-

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ing table shows the period of service in the same kind of work in the State:

In the first year of service	16
In the second year of service	10
In the third year of service	12
In the fourth year of service	19
In the fifth year of service	6
In the sixth or a later year of service	13
	76

Half then are in third year or below, half in fourth year or above.

Of teachers who have been in like service in the schools of the State since October, 1915, but have left the work or the State since that time, there left with the—

First year of service	30
Second year of service	33
Third year of service	14
Fourth year of service	11
Fifth year of service	6
	94

Of the 170 teachers employed during that time the record follows:

	1915–16	1916–17	1917–18	1918–19	1919–20	1920–21	Total
First recorded in service	65	25	37	14	12	17	170
Left the service in New York State	13	21	28	12	18	2	94
At present in service (May, 1921)	..	..	..	..	..	..	76

The effect of the war and accompanying industrial conditions appears very clearly in the rapidity of turnover. As suggestive of the same effect, the following table is offered:

Left the service for a time, but returned to it:

For 1916–17	2
For 1916–17 and 1917–18	1
For 1917–18	1
For 1917–18 and 1918–19	2
For 1918–19	9
For 1918–19 and 1919–20	5
For 1919–20	1
	21

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Of the 170 teachers in service during the past six years, there—

Made no change of position	111
Changed position once	51
Changed position twice	5
Changed position three times	3
	170

	Longest in one school	Shortest in one school
1 year or less	62	93
2 years or more than one	49	45
3 years or more than two	39	22
4 years or more than three	17	7
5 years or more than four	2	2
6 years	1	1
	170	170

Teachers at work in May, 1921, show much the same stability and tenure.

No change of position	42
Changed position once	31
Changed position twice	1
Changed position three times	2
	76

	Longest in one school	Shortest in one school
1 year or less	24	39
2 years or more than one	16	18
3 years or more than two	24	14
4 years or more than three	10	3
5 years or more than four	1	1
6 years	1	1
	76	76

As compared with the whole group of teachers, those now at work show a slightly longer tenure in one school, those staying two years or more being for the whole group 62.9 percent, for present teachers, 68.4 percent.

Yet in tenure of the present job the 76 teachers show the following distribution:

		Percent
First year	30	39.47
Second year	19	25.00
Third year	18	23.68
Fourth year	7	9.21
Fifth year	1	1.32
Sixth year	1	1.32
	76	100.00

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The last is a matter of considerable significance. It is the work of the teacher of agriculture to adapt his course to the needs of the region in which his pupils live, and to make the most of his community resources in teaching. Accordingly, what he teaches and how he teaches it is in considerable measure dependent upon an intimate knowledge of his community. The teacher in the first year cannot have the intimate knowledge that is desirable, yet one teacher in three is in his first year with the community for which and through which he works. The State supervisory force has not missed the significance of the state of affairs. It is now the first duty of the teacher, entering upon employment by August first if possible, to make a survey of the farm interests of the region served by the school. A form and a suggestive system of procedure are furnished by the State office, and good results should come of the study. In addition the law provides that the teacher shall work with an advisory board of farmers in determining what is most desirable to teach, and what resources are most effectively usable. Sixty-one of the 63 teachers replying to the questionnaire report the appointment of such a board, and 49 have already found it of use to them. But both the survey study and the advisory board are recently inaugurated measures to increasing the efficiency of teaching, and their effect is prospective rather than actual.

A further indication of the turnover of teachers is given by the following figures dating back to 1915 (October):

Seventy-six courses in operation May, 1921:

In operation one year	11
" " two years	10
" " three years	3
" " four years	6
" " five years	4
" " six years or more	42
	76

Number of teachers employed in these schools during past six years:

	Schools
Employing one teacher	23
" two teachers	14
" three teachers	30
" four teachers	9
	76

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The salary tables and medians already reported indicate for agricultural teachers, as with all other teachers during recent years, a rather marked advance in compensation, in terms of dollars, if not in terms of command of resources. Figures for 113 teachers who have been in service more than one year show the following average annual increases in salary during the term of service:

Average annual increase in dollars	Number of teachers receiving such increases
−300	1
−150	1
−100	1
0	10
50– 99	7
100–149	23
150–199	13
200–249	21 (median)
250–299	11
300–349	10
350–399	2
400–449	3
450–499	1
500 and over	9
	113

Fifty-six of the teachers have had an annual increase of $199 or less, 57, an annual increase of $200 or more. Thirteen teachers had no increase at all or a reduction of salary; 13 received $400 or better annual increase. Of the lowest 13, 11 have left the service; of the upper 13, two. Of those receiving an actual advance of less than $200 average, 31 have left the service. Of those receiving an average advance of $200 or more, but less than $400, seventeen have left the service. In the lower scale of advance, then, three of every four teachers have left the service; in the upper scale one in three has left the service. The effect of substantial advance yearly in holding men is clearly evident, as well as the reverse. A failure to maintain an advance of $200 has meant three to one odds against retaining the man; maintaining an advance above $200 has meant two to one odds favoring retention. In the face of the demand for men and agriculturally trained men during the past six years schools have had not only to increase the salary scale rapidly, mainly through State and Federal funds, to be sure, but have had to main-

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tain a median rate of advance of $200 yearly. It is hardly to be expected that such a rate can be maintained.

Where the men, successful and unsuccessful, go after leaving the high school service in New York State is a matter of some interest. No complete data are of record. The following have been secured, however, through various inquiry:

MEN WHO HAVE LEFT THE SERVICE OF THE HIGH SCHOOLS

EDUCATIONAL SERVICE

(*a*) Now teaching in State colleges of agriculture	4
(*b*) Now teaching in State or other technical schools	9
(*c*) Now teaching in high schools in other States	11
(*d*) Now engaged in training teachers of agriculture	4
(*e*) Now engaged in supervision of agricultural teaching	5
(*f*) Now engaged in graduate work in agricultural education	2
(*g*) Now engaged in farm bureau work	14
(*h*) Now engaged as State extension administrators	3

OTHER

State milk inspector	1
Now agents of farmers' co-operative associations	3
Now practising farmers	19
Incapacitated through bad health	2
Deceased	6
Farm machinery agent	1
Teaching other than agricultural	1
Practising law	1

Categories (*a*) to (*h*) inclusive are within the field of agricultural education. All but (*c*) and (*f*) provide salaries in advance of those paid by high schools. Two men out of three, then, appear to be going on with the work of service in agricultural education at an increased salary after leaving the work of the high schools. Evidently teaching as a stop gap until discovery of a more renumerative opening in an unrelated field is not practised in the vocational departments of New York high schools. Further, the experience of agricultural teaching is an undoubted asset in the occupations of farming and association work, and the retention of these men in the field of rural activity an altogether creditable showing.

SCHEDULE

The teaching schedule of teachers and principals in agriculture is shown below for all schools in 1920–21. It does not include junior project teaching, or short course work in the two instances where

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such was given, nor does it account for activities in supervision by principals or for outside studies of farms, visits to projects, preparation of material, etc., to which the time of the teacher of agriculture is supposed to be largely devoted. Only the regular periods of class meetings are included. Reduced to the single forty-five minute period basis, they show as follows:

Periods of vocational teaching	Number of teachers
2	5
4	62
6	7
8	1

The median teaching load of all principals in rural high schools is 5 periods; of all teachers including principals 6.4 periods. Thus, within the walls of the schoolhouse the teacher of agriculture has less than the normal load. To do the work that he should do it is doubtful that the load can be increased. The five teachers who have only two periods are in the first year of the establishment of work in school. During such a year it is possible that a prorating of salary to allow teaching in other subjects may be useful.

In regard to schedule, only four teachers gave opinion that a greater total of hours was necessary; five that a less total was desirable to meet conditions in the school. Sixteen, however, expressed the opinion that a new distribution was desirable.

Most of the suggestions had to do with an arrangement which would leave boys free to spend a longer time, when necessary, on field trips or practicums, or on the project at harvest and planting time. They were as follows:

Clear a half day for agricultural classes	5
Give lower classes one-half day clear, upper classes the other	2
Use end periods of each half-day	3
Full half-day fall and spring, shorter periods in winter	2
Distribute by single and double periods	2
Distribute by single and quadruple periods	1
Distribute by double and triple periods	1

The fourth suggestion appears the most flexible and adaptable to seasonal needs, but is somewhat upsetting to the academic conception of schedule. The first three may accomplish the same results if seasonal variation in the use of time be permitted the teacher.

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CHAPTER VI

ENROLMENT—AGRICULTURE

THE total enrolment for 71 departments of agriculture in high schools and four intermediate schools in operation in May, 1920–21, was 1,228. Only 14 girls were reported from four schools as follows: 1 girl, 2 schools; 5 girls, 1 school; 7 girls, 1 school. The distribution of total enrolment in agriculture in schools is shown in the following table:

Number of pupils	Number of schools	Number of pupils	Number of schools
7	1	19	3
10	5	20	3
11	1	21	2
12	7	22	1
13	9	23	1
14	6	24	5
15	5	25	4
16	10	27	1
17	2	28	2
18	5	32	2

The median enrolment for the 66 schools in places under 4,500 population was 16; for the 9 schools in places above 4,500 population, 19; for the entire list of schools, 16. The intermediate schools had enrolments respectively of 10, 10, 12 and 13.

Median enrolments for the past ten years are as follows:

Year	Number of schools	Median enrolment	Year	Number of schools	Median enrolment
1911–12	15	24	1916–17	72	18
1912–13	26	20	1917–18	73	18
1913–14	34	16	1918–19	60	18
1914–15	47	17	1919–20	68	16
1915–16	65	18	1920–21	76	16

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The influence of the minimum requirement of 25 in the first two years is noteworthy, as well as the fact that it was not met. The decrease of requirement later from 15 to 12 is apparently without effect, since the pre-war years at 15 match the post-war years at 12. The slight rise during the war is probably due to the effect of propaganda of patriotism and desire of boys to contribute to the winning of the war through increased food production.

Age and Grade

Enrolment by grades and ages is reported from the replies made to questionnaire cards by 947 pupils in the 66 schools located in places of under 4,500 population. That is an incomplete record, though every school is represented by a majority of pupils enrolled in agriculture. Of the 66 schools, 21 have maintained courses for a period of three years or less, so that totals and percentages enrolled by grades in agriculture are not comparable with those in academic courses representing the full four years of work. A comparison is made, in a paragraph treating of size of classes, under the section on Teaching of Agriculture. By that means the effect of agricultural instruction upon enrolment of boys is shown, as it cannot be shown by the comparison of totals in existing schools.

The figures reported are as follows. Percentages are probably more significant than totals.

Grades	Number of pupils	Percent total	Ages	Number of pupils	Percent total
VI	1	0.74	12	3	2.44
VII	6		13	20	
VIII	103	10.89	14	78	8.28
IX	363	38.41	15	186	19.75
X	218	23.07	16	266	28.24
XI	144	15.23	17	190	20.17
XII	103	10.89	18	126	13.37
Graduates	4	0.75	19	45	4.78
Specials	3		20	18	1.91
..	..	..	21	7	1.06
..	..	..	22	1	
..	..	..	23	1	
..	..	..	24	1	

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One pupil in 9 is admitted to agricultural work in the first year who has not completed all the Regents requirements in the eighth grade. Approximately the same practice is pursued in the case of "eighth graders" in other studies of the high school program. The pupils reached by agriculture, then, are by age and grade among boys the same group as is reached by the academic curricula (see report on secondary schools). The sixth and seventh grade pupils are accounted for in the intermediate schools. Only one pupil in 100 is a graduate or special student in agriculture, according to the reports of pupils themselves. In connection with the figures later submitted from the report of the Military Training Commission this state of affairs is significant, The present organization is serving practically only the regularly qualified and matriculated pupils of the high school, who constitute but a small fraction of adolescent boys in the rural communities.

It has been stated frequently by academic opponents of vocational education that the agricultural course does not appeal to farm boys and farmers' sons. The figures below effectively refute that statement. In another connection also they are significant. Classroom instruction in terms largely out of the experience of pupils is notably futile. But classroom instruction in agriculture does not offend in that respect to any very significant degree, according to the reports of pupils.

OCCUPATION OF PARENTS

Occupation of parent reported	Number	Percent
Agricultural	720	77.76
Non-agricultural	206	22.24
Not reported	21	..

Seventy-eight boys in a hundred, then, enrolled in the agricultural course, are farmers' sons. Data showing the percent of farmers' sons in high schools are not available. There is, however, no reason to believe that the percentage of farmers' sons in high school is greater than that of farmers' daughters; the probabilities are the reverse. Nor is there any reason for believing that work in homemaking is selective against farmers' daughters. Hence a reasonable judgment of selective appeal in the case of agriculture may be based on comparison with the parental occupations of

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girls in homemaking. Cards received from 880 girls in homemaking in rural high schools show that 51.93 percent are farmers' daughters. On that evidence the selective power of agriculture in drawing farmers' sons is very marked.

Farm Experience

One index of farm experience is found in the following:

	Number	Percent
Boys reared in open country	648	68.49
Boys reared in country and village	65	6.87
Boys reared in country, village, city	11	1.16
Boys reared in country and city	24	2.54
Boys reared in village and city	3	0.32
Boys reared in village	166	17.55
Boys reared in city	29	3.06

Another in the following:

Boys living on farm now	706	74.55
Boys not living on farm now	241	25.45

That only three boys of four are now living on a farm is significant, particularly with reference to the organization of supervised practical work or projects, later on discussed. The relative difficulties of schools in that particular are indicated in the following table:

Percent boys now living on farms	Number of schools	Percent boys not now living on farms
0	0	100
1–10	0	91 +
11–20	0	81 +
21–30	0	71 +
31–40	1	61 +
41–50	4	51 +
51–60	6	41 +
61–70	14	31 +
71–80	16	21 +
81–90	12	11 +
91 +	8	1 +
100	5	0

Evidently the problem of effective project organization is one which confronts the majority of teachers so far as the boy not living on a farm is concerned. In approximately two cases out of five it is a serious problem, since three boys or more in ten are not provided with home facilities of the genuine farm environment. The present policy of the Division of Vocational and Extension Education in encouraging the substitution of employment, under the teacher's supervision, for the home project, is certainly appropriate

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to the revealed status in the schools. To work out an organization of such supervised practice employment as shall make it as effective in the provision for responsible management as is the project, is a problem as yet unsolved.

A third index of farm experience is shown in the following:

Boys reporting that they have	Percent of 947 boys
Lived all their lives on a farm	51.00
Lived on a farm 13 years or more	11.71
Lived on a farm 10–12 years	6.01
Lived on a farm 7–9 years	5.28
Lived on a farm 4–6 years	8.65
Lived on a farm 1–3 years	7.07
Never lived on a farm	10.33

The type of farm on which such experience was had is indicated below. The classification "general," of course, covers a multitude of differences but indicates diversity of experience.

		Percent
General farm	517	60.63
Dairy farm	277	32.55
Fruit farm	32	3.76
Truck farm	7	3.06
Poultry farm	3	
Sheep farm	1	
Country estate	1	
Not given	13	

In New York the three types of farming in which 97 boys of 100 who have had farm experience report their experience, are diversified types involving the use of machinery, the keeping and managing of horses and cattle and poultry, at least, and the growing of the common forage crops. Evidently, then, there is a large basis of common experience usable in the classroom work in agriculture. Such work can be made effective if the tendency of agricultural teachers observed to make use of concrete farm experiences of pupils be extended to the fullest.

Nine boys of ten approximately, then, have had somewhat diversified experience of farm life. It is not certain, of course, that such experiences have been very fully revealing of the possibilities of farming occupations or farm life, but at least such boys are not entering into vocational work in total ignorance of the sort of work and the sort of life that must be done and lived on a farm. As between farming and farm life, and some other occupation and the life implied therein, they are not wholly in the dark as regards

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farming. There is in their experience the basis for intelligent guidance in regard to the agricultural vocations at least.

Choice of Vocation

Now the stated intention of boys with regard to prospective occupation is to be taken with a grain of salt. For many of them, in the absence of any adequate provision for range of vocational experience, and any teaching, even informational only, with respect to the opportunities for self-realization and for social service in various careers, the statement is a guess or a manifestation of a temporary set of mind. But what the boys in the agricultural course think they wish to become is of interest at least, and of some significance. At present we have no better criterion for determining the appropriateness of the vocational course to the occupational interests of pupils than the expressed purpose of the pupil.

One hundred and eighty-five, or 19.54 percent, of the 947 boys and girls (14) reporting are undecided as to future occupation. Those who profess decision number 762, or 80.46 percent of the total. As to indicated pursuits, they classify as follows:

Occupations related to agriculture specified as:	
Farming	497
Poultry farming	24
Dairy farming	6
Fruit growing	1
Cattle breeder	1
Bee-keeper	4
Florist	1
Nurseryman	1
Milk handler	2
Veterinary	4
Forestry	13
Teaching agriculture	26
	580

Note: Veterinary, forestry, milk handling, and teaching of agriculture are included only because of the relative appropriateness of the agricultural teaching, as compared with academic work offered in high schools, to the vocational interest expressed. They are not regarded as true agricultural occupations.

Occupations not closely related to agriculture specified as:	
Engineer	42
Mechanic	35
Electrician	17
Carpenter	3
Architect	3
Truck driver	4
Railway employee	7
Draughtsman	1
Tailor	1
Undertaker	2
Aviator	1
Chemist	1
Nurse	2
Homemaker	1
Y. M. C. A. Secretary	1
Detective	2
Business	37
Lawyer	8
Physician	3
Banker	3
Musician	2
Author	1
Army officer	1
Naval officer	3
Professional athlete	1
	182

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Of boys making choice, 76.12 percent fall within the first group, 23.88 percent in the second. The correlation between occupation of parents and prospective occupation of children is high, as found in many studies of the sort.

Occupation of parent		Occupation chosen by pupil	
Agricultural	77.76	Agricultural	76.12
Non-agricultural	22.24	Non-agricultural	23.88

By schools the differences in prospective vocation may be shown as follows:

NUMBER OF SCHOOLS

Percent Pupils	Undecided	Agricultural occupation	Other occupation
0	14	0	9
1–10	8	0	10
11–20	15	0	17
21–30	14	1	16
31–40	7	5	8
41–50	6	13	6
51–60	1	15	0
61–70	1	6	0
71–80	0	19	0
81–90	0	6	0
91 +	0	1	0
100	0	1	0
Median	11–20	51–60	11–20
Upper quartile	21–70	71–100	21–50
Lower quartile	0–10	21–50	0–10

By grades and percentages of totals in each the indicated choices of occupation are as follows:

	Agricultural	Other	Undecided
Special and graduate	100.00	0	0
Grade XII	64.08	25.24	10.68
Grade XI	65.97	17.36	16.67
Grade X	63.30	17.43	19.27
Grade IX	57.85	20.93	21.22
Grade VIII	47.57	28.15	24.28
Grades VI and VII	57.14	28.57	14.29

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In half the schools, then, one or two boys in 10 have not decided on an occupation, in half 2 to 6 boys in 10 have not decided on an occupation. By grades, ignoring the two extremes in which numbers are very small, the progress of professed decision is steady, from 76 boys in 100 in grade VIII, to 89 boys in 100 in grade XII. The influence of teachers is probably largely accountable for the differences in schools, those of the course and of approaching graduation for the grade differences. The increase in determination upon agricultural occupations is steady from grade VIII to grade XI. Thereafter the influence of the vocational diploma as a means to college entrance is shown, with the additional influence of the enrolment of a few twelfth graders in the newer departments in the lower classes in agriculture, the senior who has made his requirements choosing an elective in the first or second year of agriculture.

Intention To Go to College

Intention to go to college varies among schools as follows:

Percent of pupils intending to go to college	Number of schools
0	1
1–10	2
11–20	5
21–30	9
31–40	7
41–50	14
51–60	15
61–70	5
71–80	6
81–90	2

In half the schools, then, one to four boys in every ten expect to go to college, in half from four to eight. There is no evidence that in the minds of pupils the vocational course blocks the way to college entrance, in spite of the frequent allegation of academic opponents of the course. The influence of teachers and principals probably is largely accountable for the range of differences in schools. Of all boys 46.56 percent declare the intention of continuing their studies beyond the high school period. No standard is available for judging how far those expectations will be fulfilled. From rural high schools in the State, however, in 1918–19 and

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1919–20 approximately 27 percent of the graduates entered some higher institution. It is not unsafe to predict that, including short course work at the State colleges, at least that proportion of graduates in agriculture will go to college.

Of all those who declare an intention to go on to college, 59.41 percent have indicated choice of an agricultural course; 9.5 percent are undecided on a course, 12.7 percent choose an engineering course, 8.4 percent intend to take a business course, and the rest scatter among medical, veterinary, forestry, law, teaching, military and naval, arts and musical courses. By grades the selective influence of the four-year course in determination of intention to go to college is significant, and doubly marked in the choice of agricultural course. The fact that the State college of agriculture is the largest institution to which the vocational diploma admits undoubtedly has an effect, but the effect of the course is probably greater still, if we may judge by the fact that although three in ten eighth graders expect to go to college, only one in eight of the group so intending means to take an agricultural course. Of seniors 7 in 10 expect to go to college, and of those with such expectations nearly 7 in 10 expect to pursue an agricultural course.

Grade	Percent planning to go to college	Percent of those planning an agricultural course
XII	69.90	68.05
XI	56.25	66.67
X	42.66	65.59
IX	41.33	55.00
VIII	35.92	13.59

Entry upon the high school course in agriculture results promptly in a relatively high choice in agriculture for college work.

Of all farmers' sons, 309, or 42.92 percent, are going to college. Farmers' sons make up but 53.17 percent of the prospective college group, though they constitute 77.76 percent of all pupils in the course. Non-farmers' sons are planning on college work to the extent of 64.08 percent. They make of the college group 46.83 percent, though of the total group, but 22.24 percent. Thus half again as many boys from non-agricultural parentage plan on college as do farmers' sons.

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However, 30.83 percent of farmers' sons declare intention to go to the agricultural college, as against 19.32 percent of sons of other than farmers. Of those planning to take a college course in agriculture, 84.73 percent are farmers' sons, 15.27 percent sons of others. Planning to take another college course are 12.08 percent of farmers' sons, 44.66 percent of sons of others. Of the whole group professing expectation of college study in other than agricultural courses, farmers' sons make 48.60 percent, sons of others 51.40 percent.

It thus is evident that the farmer's son in the high school agricultural course, if less likely than his village neighbor's son to plan on a college course, is far more likely to choose an agricultural college course than any other course, and more than half again as likely to choose that course as his village seat-mate. His seat-mate, if half again as likely to plan on college, is more than three times as likely to choose a non-agricultural college course as the farmer's son, but is, nevertheless, more likely to take the agricultural college course than another.

In the case of occupations professedly chosen the selective effect of the course in terms of parental occupation is marked. Cutting out of the list of agricultural occupations forestry, veterinary, and milk plant employment, for all of which the value of the vocational course is undoubtedly higher than that of any other high school course at present offered, there are 561 boys who intend to pursue agriculture, ignoring those who profess no choice. Of these 480 are farmers' sons, 85.56 percent; 14.44 percent non-farmers' sons. The appeal of the course, then, in terms of occupational interest, is higher than in terms of parental occupation, the corresponding figures being 77.76 percent and 22.24 percent. But almost half of all non-farmers' sons, 48.54 percent, are prospective farmers or teachers of agriculture.

There are several significant facts in the foregoing. Boys who think they know that they wish to pursue farming occupations take the agricultural course in proportionately large numbers. Boys who think they know that they do not wish to be farmers not only enter the course, but persist through it. In either case anticipation of college appears to make no difference. Considering the occupa-

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tions of the agricultural group, the choice of the agricultural course is easily understood, with other occupations in view less. Barring business, the nature of which is usually unspecified, the more frequently chosen occupations are the engineering and mechanic trades. By substituting agriculture for language the boy gains an opportunity to work with tools and machines and use instruments, such as the plane-table and level, to draw to scale, make topographic maps, and the like. It is hardly to be wondered that a boy looking forward to one of those occupations should choose the opportunity to approach his career in some clearly appropriate way, rather than to give his time to Latin or French, merely because such is a college entrance requirement.

The agricultural course provides, usually, the only immediate means to contact with economic problems and to methods of accounting and advertising. That the boy who plans a business career should choose the course rather than foreign languages is readily understandable. Further, in many of the schools the only opportunity to work with a man teacher is in the agricultural course. The presence of boys who have no intention of farming in the course is, then, fairly accounted for. They are simply taking the best chance the school offers to get what appears to them as really useful education.

The need for provision of useful and appropriate work for such a group is obvious. The provision of such is among the recommendations of the surveyor.

Intention to Complete Course

Pupils were asked to state whether or not they intended to complete the four years of work in agriculture, and if not, why they proposed to quit. All but one replied to the question: 648, or 68.50 percent, intended to stick; 253, or 26.74 percent expected to quit; 35, or 4.76 percent, were undecided in the matter.

The reasons given for quitting are interesting. Sixty-three quit because of graduation before the opportunity to complete the course was given; that is, the work was too new in the school to enable them to take all four years. Fifty, or nearly the same proportion, proposed to quit because they were not going to be farmers;

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69 were leaving school to go to work; 12 did not like the work or did not like the teacher; 19 quit because of pressure of academic requirements; 4 were moving away from the community; 1 left on account of his health; and 1 for lack of funds to stay.

Those who quit because they chose to, then, were not more than one in ten of the enrolment. No comparison is possible with other high school subjects, but agriculture would probably rank high among those offered.

Reasons for Choice of Course

Reasons for entering the course given by the boys are variously naïve, interesting, or significant: 900 boys made answer, with the following frequencies:

Because I intend to be a farmer	151
Because I am interested in farming	145
Because I want to learn farming	156
Because I like agriculture	144
To prepare for agricultural college	58
Because what I learn will help on farm now	50
Because I can use what I learn some time	49
Because it is more practical than other courses	36
Because I have always lived on a farm	32
Because I want to learn poultry keeping	25
Because my parents advised me to take it	22
Because I want to know dairying	10
Because I want help in fruit growing	3
Because there is money in farming	26
Because it helps me to manage my farm work	8
Because it will make me better fitted for farming	10
Because I like shop work	9
Because I like the project work	7
Because I like the country	11
Because it is the most advantageous course	11
Because I need some farm experience	22
To find out if I want to be a farmer	15
Because I am crippled and I can only teach	1
Because it is required (intermediate schools)	23
The only high school course I could take (Grade VIII)	5
Because I wanted to learn a trade	4
To get an education	6
To fill up spare time	7
To get the counts toward my diploma	64
Prefer it to foreign language	99

Type of Pupil

The teachers' opinion concerning the type of boy, according to scholastic ability, drawn in to the agricultural course, indicates that

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teachers, on the whole, think well of the boys who come to them, if it be by no means conclusive evidence. The judgments of principals and departmental teachers are recorded separately, for the reason that, presumably, the principal having acquaintance with all the boys of the school and their records should give a better judgment. The principals are somewhat more conservative than the other teachers. But, on the basis of their judgment even, there is no reason to believe that boys in agriculture are other than the normal high school group in scholastic capacity.

	Principals	Departmental teachers
Normal high school lot	10	3
More bright boys than dull boys	9	30
More dull boys than bright boys	4	7

That the tendency to "dump" the scholastic "dubs" into a new course, particularly of the vocational type, is strong, is common opinion. No evidence is found here for the existence of the practice on the part of principals. Examination by standard test would be of interest.

The lack of record of graduates of the vocational course and of matriculants who have left the course is marked in the schools, as in the State office. Thirty-one schools could give no data with regard to graduates, seven with regard to departed matriculants. The rest were able to give only incomplete data in every case.

Records of Matriculants

Record of 332 graduates from 27 schools is reported as follows:

	Number	Percent reported
In agriculture	150	45.2
In college	83	25.0
In other vocations	99	29.8

Record of 578 former students non-graduate from 48 schools is as follows:

	Number	Percent reported
In agriculture	241	41.8
In college	33	5.7
In other high school courses	143	24.7
In other vocations	161	27.8

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Mr. H. S. Gabriel, in a study of such boys for four communities in 1919–20, reported 40 percent farming; 59 percent in farming and related pursuits. Both his report and that above include periods in which the demand for unskilled labor in industry at high pay was draining the farms. Nevertheless, the result appears disappointingly low. It is only by comparison with the total of high school graduates that the effect of the agricultural course in actual placement becomes evident.

The percentage of boys in the senior classes of all rural high schools is 36.5. Of all graduates of the years 1918–19 and 1919–20, 3.503 percent went into agricultural occupations. Assuming that such were boys almost exclusively, it is evident that about one boy in ten graduating from the high school goes into farming at graduation. The increased proportion from agricultural courses is thus from 300 percent to 600 percent. It is not to be assumed, however, that the boy who seeks other employment of an unskilled nature for wages is lost to agriculture. The accumulation of a small capital is necessary to a start as a renter, and such may be made through employment other than as a farm worker. No data are available to indicate how far such a prognosis is reliable.

While the agricultural course remains the only opportunity in the high school for obtaining skill in the use of tools, judgment of material values, knowledge of instruments and practical measurements, understanding of powers and machines, of economic law and business method, however restricted such may be with reference to a vocation outside of agriculture, it is to be expected that boys will pursue that course who afterward enter into other lines of work. At the same time the indications are that the majority of the 25 percent of graduates of the agricultural course reported in college are in agricultural colleges, the actual return to agriculture by graduates is probably nearer to 65 percent than 40. Such is not far from the percentage of expectancy indicated in returns from pupils. Until guidance is provided and a greater range of vocational preparation, it is not likely that higher figures will be reached.

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CHAPTER VII

EQUIPMENT

DETAILED lists of equipment possessed by schools are on file with the division at Albany. No statistical data were assembled, however, from such lists. They seemed to bear out the statement of the three supervising officers that equipment is inspected and approved rather according to the particular instruction being offered and to the size of classes than with respect to the elaborate list provided in the State requirements. Comparatively few schools can now meet item for item that list of requirements, but all have been approved for present purposes of instruction. The State list is not compiled from any very careful study of the requirements of farmers or of teachers. In the case of shop tools, the list is approved by a highly qualified shop expert. It is unlikely that any one farmer would possess or need to possess so full an equipment, but the list is meant to cover a wide range of shop operations such as might be found in total among the farms of a region. Until a study has been made of existing and prospective needs in construction and repair work on farms, it is not just to say that the requirement is too elaborate. In regard to laboratory equipment a review of requirements since the foundation of schools indicates a marked tendency to do away with what is costly and unnecessary to the needs of teachers, and at the same time to insist that teachers be not compelled to make or have their boys make laboratory equipment that is of essential utility in teaching, or to get along with makeshifts, such as tin cans, broken bottles, and wooden balances, for necessary apparatus.

The report on equipment is based on the observation of the twenty-six schools in which methods of teaching were studied. Reports on equipment were incidental to observation of teaching, and in consequence neither elaborate nor complete.

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With respect to tools and implements, observers were asked to report on the type used—whether of the sort actually used in the vocation or not. In twenty schools they were reported as satisfactory in that respect, in six they were reported as not of the sort now being used by farmers.

The condition of the tools and implements was reported for twelve schools as good, for eight as fair, and for six as poor.

As to whether tools and implements were adequate to the needs of the class in the judgment of the observer, the report is as follows:

yes, 18; no, 8.

Approximately 80 percent of the schools, so far as the 26 observed are representative of the general condition, are reasonably well equipped with tools and implements for purposes of instruction—it being borne in mind that such tools and implements are supplementary to the accessible resources of the community.

With respect to possession of equipment for the several subjects of the course the reports are not very enlightening.

POULTRY

No equipment at all	8
Incubator and brooder	15
Complete equipment	3

The deficiency here was not judged accurately. With the project work well organized and a reasonable resourcefulness in the use of community plants, it is probably not serious.

GARDEN AND CROP EQUIPMENT

None at all	9
Hoes and rakes	6
Additional implements	10

The same comment as was made on poultry is applicable here.

SOILS EQUIPMENT

None at all	7
Complete	4
Variously incomplete	15

The deficiency here appears more noteworthy. Though elaborate equipment for soils work is unnecessary, there is little oppor-

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tunity for dependence on community resources. The State list is a fair guide to important requirements.

Fruit Growing

In fruit work, practicums involving a group play an important part and it is seldom that sufficient apparatus for group work is conveniently accessible. The farms will furnish trees to be pruned or sprayed by a dozen boys, but not the tools for a dozen to work with.

No equipment	4
Insufficient equipment	2
Complete	2

Special equipment mentioned by frequencies:

Pruning shears	7
Pruning hook	2
Pruning saws	6
Grafting chisels	8
Spraying outfit	3

Dairy and Animal Husbandry

None	3
Babcock tester and glassware	16
Full list	7

Agricultural Engineering

None	9
Level with attachments	8
Plane table	9

It is to be noted that not all the schools observed were offering the four years of work, so that approval of present equipment is understandable. Yet it appears that New York schools are by no means fully equipped with the material apparatus of agricultural instruction. In respect to books and reading materials, only one school was reported as absolutely deficient in library facilities. That school had but a few books and all of them borrowed. The rest ranged from excellent to fair in library facilities.

The value of the school plot as a means to vocational teaching is much in dispute. It is fairly certain, at least, that it is not essential. Of the 26 schools, 11 had no plots, 13 had "small" plots, and two had three and four acres respectively.

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Rooms

Two schools did all the work in one room; twenty-two combined classroom and laboratory in one room and had a separate shop; one school had three separate rooms,—classroom, laboratory, and shop, —and one had a separate classroom with laboratory and shop combined. With the exception of the first two the State requirements as to number of rooms appear to be met. The combination of laboratory and classroom, with separate shop, which prevails, is probably the most desirable division of rooms.

The location of rooms is shown as follows:

Shop in the basement	19
Shop on first floor	1
Shop on second floor	1
Shop in separate building	5
Classroom-laboratory in basement	8
Classroom-laboratory first floor	1
Classroom-laboratory on second floor	7
Classroom-laboratory on other floors	6
Classroom on first floor	1
Classroom on other floors	3
All rooms in school building	21
All rooms in separate building	3
Division between buildings	2

The typical school, then, has its classroom-laboratory in the main building, with a shop in the basement. Less than one school in three relegates all vocational teaching in agriculture to the basement.

Condition of rooms was reported as follows:

Excellent	5
Neat and orderly	11
Untidy	5
Untidy and disorderly	5

Lighting of agricultural rooms was reported as unsatisfactory in seven cases, referring to the basement shop. In two cases artificial light had to be used in order to enable pupils to work in the shop. Heating in four cases was supplied by stoves, in one by an open-flame gas heater. In twenty-one cases the windows supplied ventilation.

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Merits and Deficiencies

Special deficiencies in rooms and equipment are reported as follows:

Rough walls..... 3	No tables or desks.... 1	Scanty illustrative material.....11
Loose plaster..... 3	No sink..... 8	No blackboard..... 1
Dark and dingy..... 2	No running water.... 2	Scanty shop equipment.....11
Low ceiling..... 2	No storage room for lumber, etc.....17	
No work benches in shop..... 2		

and the deficiencies in subject equipment already indicated. In summary of equipment observers judged equipment in general to be:

Of appropriate type	22
Inappropriate	4
Sufficient in amount	12
Insufficient in amount	14

It is worthy of note that in the vocational teaching relative emphasis is high upon the securing of a well-prepared teacher—the first requirement to success. The expense, however, to the community is small. But communities are not on that account expending funds in travel and equipment to make the work of that teacher most effective. More than half the schools, according to the random selection employed, are scantily equipped. The need under such conditions for enabling the teacher to work frequently with the boys at home is increased rather than lessened. In respect, however, to rooms and equipment, where the latter at least is less a factor than in homemaking, the "schools of agriculture" are better supported than the "schools of homemaking," and probably as well supported as the science teaching departments of the high school. If, on a basis of standard adequacy, the laboratory equipment of the rural high schools be given a rating of 13 points in a possible 20, agricultural equipment has not contributed to raise the rating.

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CHAPTER VIII

SUPERVISED PRACTICE

THE supervised practice work carried on by pupils on their home farms and as responsible owners or managing partners in specific enterprises or jobs goes, for the most part, under the name, "home project." In lieu of a home project boys who do not live on farms or who for other reasons may be unable to secure ownership or managerial control of crops or live stock may be permitted to substitute employment on an approved farm under supervision of the teacher and agreement with the employing farmer. Observation of the conduct of such work was not undertaken by the surveyor, in spite of its great importance, because of the great expense in time and money necessary to an adequate study. But the summary records of the Albany office, which are carefully kept, were examined with particular reference to the appropriateness of the project undertakings for vocational instruction. Under the original requirements it was necessary only that a boy pursue an undertaking related to the subject study of the year for a period of six months or more, and to complete the work and the records of the project to the satisfaction of the teacher and the supervising officers. The records show two developments consistent with the present policy: (1) A steady increase in the size of the undertakings, so that many of them are now "man size" undertakings, involving the use of tools, implements, and areas sufficient to mark them as genuine farm enterprises and not playthings. (2) An increase in the number of "continuation projects" or the carrying on of a first undertaking through two or more years in conjunction with the new project of the following year. Thus a good many boys have two or three enterprises going at the same time and in working relation to one another, as in growing feed for stock at the same time that the stock is the appropriate project for the year. In that way a valuable experience of the coördination of effort and the dis-

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tribution of capital and labor is given on a small scale. It furnishes an excellent basis for farm management study, and represents a movement to bring all pupils in the fourth year of their work into a genuine farm management situation in so far as it is possible to do so. That the ideal has not been realized does not detract from the merits of the development.

Recorded "Projects"

In May, 1920–21, the recorded projects of pupils enrolled in 61 schools of rural districts distribute as follows:

	No.	Percent
Poultry projects	390	28.78
Crop projects	680	50.18
Fruit projects	48	3.54
Animal husbandry and dairying	183	13.51
Agricultural engineering projects	4	0.29
Farm management projects	50	3.69
	1,355	

In detail they classify as follows:

Hens and chickens	387	28.56
Ducks	2	..
Turkeys	1	..
Gardens	117	8.63
Truck crops	55	4.06
Potatoes	346	25.54
Beans	19	..
Corn	122	9.00
Grain	19	..
Unspecified crops	2	..
Apples	17	..
Peaches	2	..
Cherries	1	..
Small fruits	14	..
Unspecified fruits	14	..
Swine	72	5.31
Sheep	4	..
Rabbits	1	..
Cows	51	3.76
Heifers	6	..
Calves	33	2.43
Unspecified animals	8	..
Unspecified engineering	4	..
Managing a farm	6	..
Dairy farm project	16	..
General farm project	28	..

Records of projects carried out of the year in which instruction

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in the pertinent subject is given do not show the full number of schools carrying continuation projects, since with two or three subjects on the program of the year a boy in second or third year may be continuing a project begun earlier. Nevertheless, summary is presented as an indication that continuation projects are definitely in operation, and not in the sole status of recommended policy. Those evident from the absence in the year's program of the subject study by the class is as follows:

Continuation project	Number of schools	Continuation project	Number of schools
Poultry	14	Swine	14
Potatoes	10	Rabbit	1
Corn	8	Sheep	1
Truck crops	1	Dairy	10
Fruit	8		

The number of schools showing continuation project work is 38, or 62.29 percent; the number of such projects 211, or 15.57 percent, of the projects recorded for the 61 schools.

By schools, of the 61 reporting, the frequency of offering the various projects is as follows:

Project	Number of schools	Percent of schools
Hens and chickens	52	85.25
Ducks	2	3.28
Turkeys	1	1.64
Gardens	33	54.09
Truck crops	24	39.34
Potatoes	47	77.05
Corn	35	57.38
Grain	9	14.75
Unspecified crops	2	3.28
Apples	10	16.39
Peaches	2	3.28
Cherries	1	1.64
Small fruits	9	14.75
Unspecified fruits	7	11.48
Swine	28	45.90
Sheep	3	4.92
Rabbits	1	1.64
Cows	27	44.26
Heifers	5	8.19
Calves	10	16.39
Unspecified animals	6	9.84
Engineering projects	3	4.92
Managing a farm	5	8.19
Dairy farm project	9	14.75
General farm project	14	22.95

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Several indications of significance are to be found in the preceding summary of projects. The first goes to reinforce the statement already made that the major part of instruction and training is in first-year subjects. Eight out of ten projects, including, of course, continuation projects, is related to the instruction in poultry and crop growing. Almost 3 in 10 of all projects are in poultry raising, and more than half of all projects are in crop growing, including garden crops. Three-fourths at least of all crop projects are in cash crops, and one-half of crops and one-fourth of all projects are in potatoes.

Now the prevalence of such projects is easily explained, and the explanation accounts in part for the sequence of subjects in the course used. Poultry, garden, and cash crop projects require but a relatively small outlay in capital, a relatively small area of land, interfere to a very small degree in the management scheme of the home farm under the father's direction, and give relatively prompt and high returns for labor expended. In the same way the dominance of swine projects in the animal husbandry list is accounted for. Now such are very useful characteristics in a project. They enable a boy to get an early start in farm work as owner or manager, enable him promptly to measure the progress of his work, and further enable him to accumulate the capital necessary to projects of later years in the course. Poultry projects in addition can be readily and appropriately started in the fall of the year, so that the boy has continual and genuine problems of his own to give motive to the instruction of the year. A good deal of construction and repair work also goes with the starting of a poultry project, so that it fits in admirably with the plan of course.

But the fact remains, that by and large poultry keeping is a minor rather than a major enterprise on New York farms. It is specialized to a degree that makes it far from typical of enterprises in animal husbandry, though the same principles of selection, nurture, protection, and disposal are involved as with other animal enterprises. But a boy profits relatively little from his experience with poultry when he comes to the management of horses, cattle, sheep, or swine. It is an enterprise conducted without recourse to the major implements, machines, and powers of the farm. In the

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latter respect gardening is comparable with it. Yet more boys receive instruction in poultry and gardening than in any other subjects of the course, and many boys leave school with no other agricultural instruction than is represented by them. That is, practical experience in the kind of farming which is likely to benefit them least is given the greatest number of boys.

That half the projects undertaken are in crop growing is encouraging, and the second largest group receives such practical training. Now the truck crops and potatoes are, perhaps, representative of a larger range of farm practices and problems than the corn or grain. They have the advantage of the corn in that they ordinarily call for cash marketing and protection from diseases and insects involving practices of wide usability. They have the advantage of grain that they are intertilled crops involving care of the soil and use of implements typical of a range of crops, as well as in the matter of giving experience in disease and insect control to a larger degree than grain. Yet they do not correlate closely with projects in animal management, and are not as dominantly major farm enterprises in New York as is corn or even the other grains. Many a boy learns to grow potatoes who will never find it profitable to grow them on the home farm in larger amounts than are necessary to the home supply. Little fault can be found with the projects of the first two years as to appropriateness, if every boy were to remain in school the full four years. But since two boys out of three leave by the end of the second year, those projects become relatively inappropriate for the majority.

In any community it would seem that the boy should be as promptly as possible brought into contact with the most significant enterprises of the region. It is not enough that he shall be insured contact if he will remain for the four years. It must be insured that he will have educative contact with those major interests anyway, and will get additional experience in minor and contributory enterprises if he stays long enough. Thus, in a fruit region he should come into immediate contact with the problems of fruit growing, in a truck region with the problems of truck raising, in a dairy region with problems of milk production.

Organization of instruction about a project sequence founded on

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relative ease of inauguration or expediency in supervisory operation will certainly result in meaningful teaching if pupils can be held to the full course. But boys often leave the course or do not enter it at all because it does not bring them at once to the central interest of their prospective pursuit. A good project organization must be organized in terms of the dominance of regional enterprises, so that the most significant shall be most certainly studied by the largest number of pupils. The project must become a means to this experience in so far as it is usable, and abandoned where it is not usable. To require a boy to study poultry in his first year, because it is possible for him to start immediate project work in it is not sound, except poultry be more significant presently or prospectively to him than another enterprise. To say to a boy who wishes to become a dairy farmer, "You cannot study dairy farming till the third year," is unsound. What he is going to school for may well be instruction in dairying. The other studies of the course become significant to him only as they prove to be clearly usable in the conduct of a good dairy farm. If he cannot, for lack of capital, start with the responsible enterprise of herd ownership or management, at least he can do the next best thing, take up supervised practical work on a dairy farm in lieu of the project until such time as he has capital to "go it on his own" on a small scale at least. The same thing may be said of fruit growing.

With crops, no such difficulty obtains. If a particular annual crop be a major enterprise in the region, then it can be well undertaken in the first year. Now in most sections of the State, dairy and crop enterprises determine the type of farming. The majority who leave before graduation should, in a summary of the State, be represented in crop and dairy instruction, the minority who go on to completion in the minor projects of poultry, swine, gardening, sheep, etc.

It may be noted that the swine project is to a considerable extent typical of animal husbandry, and that it has most of the merits of the poultry project in other respects. It correlates well, also, with crop growing. Much the same justification for the brood sow project in animal husbandry may be advanced as for the potato project in crop growing, and the same general objections are valid against it.

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The critical may note the presence of a rabbit project. Inquiry was made into the matter. It is reported a genuine vocational project in that it is, on a large scale, already contributory in considerable measure to the family income, and is the prospective life work of the boy engaged. On that ground it appears well justified. There is no very closely correlated instruction, but the boy is being helped to the utmost as an individual. Since he will conduct a farm the management of which centers about rabbit raising, not all the value of class instruction will be lost to him, though he receive much that he does not need in certain subjects.

Project Supervision

Visits by Teachers.—The extent to which teachers and principals are making use of the summer season and other than school hours in visiting projects, rural schools, and farms for purposes other than project supervision is shown by the reports of 32 departmental teachers and 23 principals of the 66 engaged in the rural high and intermediate schools for 1920–21. The items reported upon are visits to projects of boys in vocational agriculture, visits to junior projects of pupils of the seventh and eighth grades, visits to rural schools of elementary grade, and visits to farms and farmers.

The range in total of such visits is for 55 teachers reporting on all items from 23 to 493, with a median at 108. For principals the range is from 29 to 339, with a median at 78; for departmental teachers, 23 to 493, with a median at 138. The lower and upper quartiles are as follows: All teachers, 23–72, and 174–493; principals 29–53, and 145–369; departmental teachers 23–80, and 210–493.

With respect to visits to farms and farmers the distribution is as follows: All teachers range from no visits (in two cases) to 96, median 20, lower quartile 0–11, upper quartile 34–96; principals range 0 (1 case) to 75, median 20, lower quartile 0–10, upper quartile 35 to 75; departmental teachers range 0 (1 case) to 96, median 20, lower quartile 0–10, upper quartile 34–96.

In the case of visits to elementary rural schools the distribution of visits is as follows: All teachers range 0 (16 cases) to 38, median 5, lower quartile 0, upper quartile 10–38.

Visits to junior projects: All teachers range 0 (14 cases) to 262,

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median 14, lower quartile 0, upper quartile 54–262; principals range 0 (10 cases) to 262, median 4, lower quartile 0, upper quartile 35–262; departmental teachers range 0 (4 cases) to 237, median 25.5, upper quartile 67–237.

The extent to which supervision of "home project" work of vocational students is carried on is indicated by the following summary from the completed reports of 1919–20. Thirty-four departmental teachers and nineteen principals, three of them of intermediate schools, are included in the list. The data have been reduced to average number of visits per boy at project work during the twelve months.

Average visits per boy	Departmental teachers 1919–1920	Principals
3.6– 4.0	3	1
4.1– 4.5	0	2
4.6– 5.0	3	6
5.1– 5.5	0	1
5.6– 6.0	5	2
6.1– 6.5	3	1
6.6– 7.0	3	1
7.1– 7.5	4	1
7.6– 8.0	4	2
8.1– 8.5	2	0
9.1– 9.5	0	1
9.6–10.0	2	0
10.1–10.5	1	0
11.6–12.0	2	0
12.6–13.0	0	1
13.1–13.5	1	0
16.1–16.5	1	0
	34	19

	Average visits per boy
Median all teachers	6.8
Median departmental teachers	7.0
Median principals	5.0
Lower quartile all teachers	3.7–5.0
Lower quartile departmental teachers	3.8–5.8
Lower quartile principals	3.7–4.8
Upper quartile all teachers	7.8–16.3
Upper quartile departmental teachers	8.2–16.3
Upper quartile principals	6.2–12.6

The distribution in time and the duration of visits are quite as important factors as frequency of visits. No record of such factors is to be had. But it is hardly conceivable that such frequencies as

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are reported for the lower quartiles can be effective in developing community teaching resources, reaching and guiding prospective or possible pupils, or in use of the project as a teaching means for vocational students. In the first place there are not enough visits to make the distribution of them through the season or teaching year a factor of any moment; in the second, no matter how long the teacher may spend on the several visits made, there are not enough of them for the "follow-up" of any process, enterprise, or interest; in the third place barely one-fourth of the teachers have attained an approximation to that frequency of personal instruction which is minimal to successful use of the project as a teaching means in vocational agriculture. Inasmuch as intimate acquaintance with community resources, intimate contact with boys to whom vocational teaching may offer an opportunity, and, above all, intimate follow-up and direction of the boy's work on his project, are central in the program of vocational education in agriculture it is evident that weakness exists.

The difference between departmental teachers and agricultural principals in the extent of their supervisory and visiting work is clear, and reasonably to be expected in view of the heavier load of the principal and the confining nature of his duties during the academic year. But it is noteworthy that some of the principals are among the most active of all teachers in spite of the handicap. It is not impossible for an energetic principal, who knows how, to do a great deal of supervising and community visiting.

The low medians are undoubtedly in part attributable to the lack of adequate provision for expenses of transportation. Unfortunately, figures are not available to show the relationship between a liberal allowance and a liberal extra-school activity. But that the normal allowance of fifty dollars is adequate there is little room to believe.

A few men are plainly "lying down on the job," and should be dismissed from the service. Others either insufficiently appreciate the importance of the work or do not know how to undertake it in spite of the wealth of supervisory advice and divisional publication with reference to the matter. It seems not unreasonable to conclude that in at least one-fourth of the cases recorded "directed farm

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practice" is still a farce from any educative standpoint. If, however, we consider that it is but a few years from the time when the project was regarded even by State officers as independent practice accessory to instruction, and by teachers as merely an incubus requirement on the part of the State for which they were responsible only as recorders and reporters of initiation and completion, it is encouraging that one-half of the teachers appear to be moving toward a creditable standard.

That rapid progress in so essential a matter is probable is not likely under a centralized scheme of supervision. The supervisor must be closer to his teachers and their problems. An organization on the basis of an administrative unit intermediate between the State and the local high school community is recommended to the careful consideration of the leaders in education.

REPORT ON COMPLETED PROJECTS, 1919–20

POULTRY PROJECTS	
No. of projects	251
Av. No. fowls	38
Av. No. chicks	67
Av. net income	$106.20
POTATO PROJECTS	
No. of projects	121
Av. area (acres)	1
Av. net income	$26.70
SMALL GRAIN PROJECTS	
No. of projects	10
Av. area (acres)	7.2
Av. net income	$77.10
CABBAGE PROJECTS	
No. of projects	12
Av. area (acres)	.833
Av. net income	$34.17
SMALL FRUIT PROJECTS	
No. of projects	17
Av. area (acres)	.765
Av. net income	$117.47
CALF PROJECTS	
No. of projects	13
Av. No. of calves	1.3
Av. net income	$63.62
GARDEN AND TRUCK PROJECTS	
No. of projects	87
Av. area (acres)	.425
Av. net income	$52.48
CORN PROJECTS	
No. of projects	96
Av. area (acres)	1.375
Av. net income	$50.36
BEAN PROJECTS	
No. of projects	9
Av. area (acres)	1.11
Av. net income	$45.56
ORCHARD PROJECTS	
No. of projects	22
Av. area (acres)	1.818
Av. net income	$106.23
DAIRY COW PROJECTS	
No. of projects	54
Av. No. of cows	9.2
Av. net income	$624.58
SWINE PROJECTS	
No. of projects	46
Av. No. pigs	7.52
Av. net income	$27.72
SHEEP PROJECTS	
No. of projects	7
Av. No. sheep	21.7
Av. net *loss*	$40.43
BELGIAN HARE PROJECTS	
No. of projects	1
No. of does	12
Net income	$14 00
BEE PROJECTS	
No. of projects	1
No. of hives	21
Net income	$152.00

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The foregoing report is based on the completed returns in hand of projects, about 60 percent of the total, for the year 1919–20. It is the opinion of the supervisory officers that the size of projects in 1920–21 will show a considerable increase. Averages are not wholly satisfactory, but figures for range and distribution could be worked out only through weeks of additional study, and averages are presented for what they are worth. Clearly not all the projects are of the "man size" to give the best vocational experience, but at least they are much more than playthings, and involve responsible productive effort and a return approximating that of the good farmer for investment and labor. The net income includes profit and wages for the boy's own labor and approximates closely the labor income.

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CHAPTER IX

CONTENT OF THE COURSE

Developments

TWO rather significant changes are to be noted in the progress of the course of study in agriculture since the formulation of the State plan in 1910. Both are evidences of the alertness of the division to seek closer adaptations to the needs of communities served by the school, on the one hand, and to improved teaching, on the other. Both are evidences, also, of increasing clarity in conception of the aim of the work.

The first is the substitution of subject studies clearly related to specific types of farm enterprises for studies of a more general and remote nature. The original plan was based on a wide, if somewhat smattering, informational study of the subject of agriculture, called general or elementary agriculture, as a "background" for further study. The general and text information of the first year was followed by more intensive study of major scientific aspects of all agriculture in soils, animal husbandry, mechanics, etc., farm management being not yet elevated to the status of a subject even in the agricultural colleges. Only in the last year of the course was any adaptation to community needs or the particular interests of a local group of pupils evident. It then became possible to choose one or two of several specific groups of subjects, such as dairying, fruit-growing, vegetable gardening, etc., to meet the local conditions. The theory then was that the boy should learn all the fundamentals of agriculture through general treatment, and only when he had mastered them come to the definite applications of such principles to the actual sort of farming which interested him. He must, of course, stay in school till the fourth year to get at the really usable connections. The present theory is still that the boy

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shall master the larger principles, but that he shall learn them not in the abstract, but through definite association with recognized farm enterprises. General information is still given, perhaps, in more than necessary measure for vocational purposes, but at least the attempt is made to give it in connection with the enterprises to which it lends meanings of a larger sort. The "fundamentals" of soils, technology of manuring, feeding, etc., are now taught, not as separate subjects, but in connection with the raising of specific crops or types of crops, the management of particular animals or types of animals, etc. At least the tendency to such treatment as against the general informational and subject treatment is marked. As has been noted, the policy of the division is to encourage the organization of teaching content about definite farm enterprises and jobs. The move to teach the boy in terms of the work he is likely to do, as well as through actual participation in that sort of work, instead of teaching a subject apart and through the written and spoken word mainly, is evident even in a study of the suggestions with respect to content made by the division. More and more the boy is studying agriculture rather than about agriculture.

The second marked change is the abandonment of the block system in the several years of the course. It used to be the custom for the pupil to study a subject, such as soils or dairy husbandry, for a certain period of months,—usually half of the academic year,—to the exclusion of any other in the field of agriculture. With the completion of that period of study he "was through with the subject" and ready to embark upon the next. So long as the mastery of an organized body of information in relation to no particular problem or other was held to be good vocational teaching, as it is still held to be good teaching in many of the studies of the high school, such a block system had certain advantages which are fairly obvious, particularly from the administrative standpoint. But with the acceptance of the view that good vocational teaching means instruction and training of the boy in the job he has to do, the possibilities of such a system for purposes of satisfactory teaching were much diminished. Both training and instruction must be adapted to the sequential development of farm problems and the opportunities for participation in genuine farm work. Now such

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problems and opportunities are not matters of schoolman's logic. but of biologic development in plants and animals, of economic demand and supply, and chiefly of seasonal changes in climate. Accordingly, the present system of study is placed on a seasonal rather than a logical basis. Studies are in all cases pursued through the year, at least, and for the year in parallel rather than in sequence The opportunities for effective teaching in terms of concrete experience, through the use of farm and community resources, for motivated study, and for the correlation of interrelated studies, are obviously very much increased. A further extension of the policy is evident in the supervisory attitude toward shop work. Not only is the division advocating a greater and greater supplanting of formal shop group instruction by the home construction and repair jobs of the farm, but also that the work in construction and repair be extended throughout the course rather than restricted to a single year. Thus a boy will do the construction and repair work appropriate to the conduct of a poultry project in the year in which he studies poultry; that which is appropriate to a dairy project in the year in which he studies dairy husbandry; he will make hot-bed or cold-frame at the time and in the case that hot-bed and cold-frame are necessary to the solution of genuine problems for him. That organization has not yet progressed very far for the reason that so many teachers are insufficiently trained in shop work to possess a great resourcefulness in the teaching of it, and, further, because they are able to rely on a ready-made shop course developed in the form of a publication. The majority of teachers are still giving the approved 90 double periods of shop work in the first year and in the first year only. The actual improvement has been mainly in the elimination of a number of vocationally inappropriate shop projects and the substitution therefor of such jobs as are likely to be done on farms. But the advocacy of the policy by the supervisory force is encouraging. A further extension, to include at least those portions of the engineering study which deals with machines of the farm and the layout and measurement operations, would add to the ultimate efficiency of agricultural teaching.

The foregoing changes of policy indicate the possible ultimate adoption of a system of parallel seasonal units of instruction chosen

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in view of the nature of regional farming. Such could be combined in any given year to meet the needs of the majority of pupils enrolled for the work in the several successive grades. Thereby would be done away with the present failure to reach the majority of pupils with the most significant training and instruction. A boy, for example, in a region where the type of farming included a dairy major, might be enabled to study the parallel units of herd management and forage crop raising in the first year of his course. If a majority of the boys were likely to remain in school, as is so often the case but one or two years, such an arrangement would be of decided benefit to them and to the community. Further, a certain number of boys not now in the high school at all might be encouraged to come in for a year in the agricultural work if they could in that year study and devote all or most of their attention to the two, three, or four units most appropriate to the kind of farming in which they are already engaged or have in prospect. It is not suggested that the adoption of a parallel unit organization will solve the problem of reaching that mass of boys who are out of school and on farms. It is doubtful that resident teaching at the high school can ever go far to the solution of the problem. But it would enable, without duplication of material, equipment, or effort on the teacher's part, the reaching of a number of special students who are not now reached by the high school teaching. Consideration of the possibilities of some such organization of the content studies is recommended by the surveyor to the authorities of the Division of Vocational and Extension Education. No revolution is implied if the present policy is accurately interpreted by the surveyor.

The adoption of units extending over a period of more than one year would be very desirable in certain cases, but the possibilities of such an organization are distinctly limited under a single teacher. Alternation of study years in the upper part of the program is an administrative necessity if any range of offerings is to be preserved. Such alternation does away with the possibility of two-year or three-year units in a single study. But, for the most part, the loss will not be great. A boy should be fairly launched with respect to a major enterprise, even, by a well-developed year of work in close relation to it.

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The Military Training Commission of the State of New York was able, in the year 1918, to enroll more than 14,000 boys of the ages sixteen, seventeen, and eighteen, who were employed on farms and not in school. At that time there was great pressure upon boys to work on farms for patriotic reasons, but also great inducement, through high wages for unskilled labor, for boys to leave the farm and to go to work in industry. Thus it is not likely that the number of boys of high school age at present engaged in farm work and out of school is less than the figures indicate. If boys of fourteen and fifteen be included, it is certain that the actual number is considerably greater. The report of the Federal Board for Vocational Education states that the total number of boys enrolled in agriculture in secondary schools of New York in 1920–21, including the State schools as well as the high schools, and short courses as well as full courses, was approximately 1,800. On that basis the number of boys now reached by the organization of vocational agriculture is conservatively not more than one in eight, more probably not one in ten. Of the implications of such a state of affairs the division is acutely aware. Short courses have been strenuously urged upon the attention of high school teachers, but thus far the success of such courses has been small. Six schools reported the offering of short courses in 1919–20, two in 1920–21. Moreover, those courses have been directed in considerable part to the needs of adult practising farmers, rather than to the needs of employed boys who may look forward to agricultural pursuits of a managerial type.

There are several suggestions for using the high school which appear to have merit. The offering of courses running from the close of harvest and fall work until the opening of spring work is one, the offering of still shorter courses at the high school or at centers apart from the high school is another. Both imply that the high school teacher has resources of time and energy that he is not likely to have under the present four year organization, including the conduct of junior project work. When the determination of courses for the several communities of the State has been more accurately made, it will doubtless be found that the four-year course is unnecessary in a good many cases. Then it will be possible to contemplate using the high school teacher for the more effective reaching of the

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boys who need it most. No attempt will be made here to discuss the relative merits of the foregoing suggestions or that of the plan for the employment of full-time itinerant teachers to work among the farm boys with small groups and individual supervision. The division is as fully cognizant of them as the surveyor. Only this one recommendation is urged upon the division; that in the formulation of plans it give its attention to the boy on the farm and not to his father. The State and the Federal government already have set up agencies for dealing with the problem of the adult farmer in the extension service of the agricultural college. In so far as that service needs enlargement or reorganization to greater effectiveness it is not the problem of the State Department of Education. Until it has solved the problem of reaching the adolescent boy in a large and effective manner it need not take up the task of coördinate supplementation of the work of another agency, desirable as such may be from the point of view of the welfare of the State. In the long run it has the larger and the more significant problem to solve. Every resource should be used to that end. The ground has hardly been scratched as yet.

Study of Content of the Course

In order to check upon the actual content of the agricultural course in 1920–21 the surveyor listed under the various subjects every topic included by any teacher in the State in the preliminary plans submitted to the Division of Vocational and Extension Education. Mimeographed copies of those lists were then distributed to the teachers in the 66 schools of the rural districts with the request that they check all items considered in their teaching and report the number of teaching periods actually used for study of the major groups of topics. The burden thus placed upon teachers was heavy, but the response was gratifying. Two teachers in three sent in reports for the subjects taught during the year.

Because of the expense of printing the entire course in such detail it is thought best to present as representative of the situation only those subjects most frequently reported and taught to the largest number of pupils. The following outlines and summaries have been made up from 31 reports on farm crops and soils, 27 on poultry

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husbandry, and 26 on farm shop work. They give a picture of the course as taught in terms of topic content, but not at all in terms of organization or sequence of topics. Though attempt was made to group under large headings in accordance with the practice of a majority of teachers, the groupings are not by any means uniformly those in use. On that account it was difficult for some teachers, even with records at hand, to give more than an approximate estimate of the time allotted to the several groups, and that fact should be borne in mind in study of the summaries. Figures showing the order of recitation, laboratory, and field study, and the seasonal ordering of topics were insufficient to be usable, desirable as such information may be in reporting the actual status. In spite of deficiencies it is believed that students of the report will gain a fairly accurate knowledge of what is taught in the way of agricultural technology to a majority of pupils in the "vocational schools" in agriculture.

A

FARM CROPS AND SOILS

TOPICS CONSIDERED IN THE TEACHING OF FROM 76 TO 100 PERCENT OF SCHOOLS

PLANT STUDY
- Plant food requirements
- How the plant gets its food
- The sources of plant food

THE CORN CROP
- Dent corn
- Flint corn
- Sweet corn
- Pop-corn
- Food value of corn
- Climatic requirements
- Soil requirements
- Production of corn
- In New York State
- In the county
- Laboratory study of the corn plant
- Field study of the corn plant
- Study of the ear
- Study of the kernel
- Scoring corn
- Judging corn
- Seed testing of corn
- Field selection
- Ear selection
- Care of seed corn
- Improvement of corn
- The ear row test
- Corn breeding
- Seed per acre
- Preparation of the soil
- Corn planting
- Cultivation of corn
- Harvesting corn
- Corn silage
- Silos
- Storage of corn
- Diseases
- Insect enemies
- Place in the rotation

OTHER CEREAL CROPS
- Wheat
- Oats
- Climatic requirements
- Soil requirements
- Study of the plant
- Study of the head

HAY CROPS
- Timothy
- Mixtures
- Climatic adaptations
- Soils adaptations
- Manurial requirements
- Identification of seed

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POTATOES
- Origin and history
- Field study
- Tuber study
- Variety study
- Improvement
- Hill selection
- Mass selection
- Certified seed
- Storage of seed
- Treatment of seed
- Potato planters
- Preparation of the soil
- Manuring
- Lime and potatoes
- Methods of planting
- Tillage
- Hilling
- Spraying
- Diseases
- Fertilizers and formulas

WEEDS
- Eradication of weeds

CROP ROTATION
- Local rotations
- Planning rotations

SOILS
- *Acidity, Alkalinity, and Testing*
  - Causes of acidity and alkalinity
  - Testing
  - Use of soils auger
  - Collecting samples
  - Litmus test
  - Vegetation as an index
- *Soil Water*
  - Absorption
  - Hygroscopic moisture
  - Capillary water
  - Capillary movement
  - Evaporation
  - Transpiration
  - Mulching
- *Tillage*
  - Fall plowing
  - Spring plowing
- *Drainage*
  - Surface drainage
- *Soil Amendment*
  - Relation to nitrification
- *Green Manures*
  - Leguminous crops as manures

PLANT FOOD CARRIERS
- Calculations to standard formulas
- Rate and method of application

The content here given may be taken as representing very nearly in the minds of teachers the "fundamentals" of the crops and soils subject. It is noteworthy in general for two things—(1) the absence of "frills," and (2) the selection for emphasis of crops important to New York State farming. The influence of standard texts appears, of course, but adaptation to a State program is evident.

ADDITIONAL TOPICS CONSIDERED IN 51 TO 75 PERCENT OF THE SCHOOLS IN FARM CROPS AND SOILS

PLANT STUDY
- Study of the parts of plants
- The structure and function of the leaf, stem, roots, and flower
- Pollination and fertilization
- Chemical composition of plants
- Osmosis
- Photosynthesis
- Natural protection of seeds
- Dissemination of seeds
- Methods of propagation

CROPS
- Field crops
- Forage crops
- Crops of New York State
- Crops of the county
- Local crop survey
- Crop survey of home farm

THE CORN CROP
- Origin of corn
- History

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ADDITIONAL TOPICS CONSIDERED IN 51 TO 75 PERCENT OF THE SCHOOLS IN FARM CROPS AND SOILS—(*Continued*)

THE CORN CROP—(*Continued*)
- Classification
- Uses of corn
- World production
- The corn belt
- The standing of the States
- Ear corn exhibit
- Computation of stand
- Corn planters
- Cultivation of corn
- Harvesting machinery
- Shocking
- Pulling
- Marketing
- Weeds
- Variety study
- Variety tests

OTHER CEREAL CROPS
- Barley
- Rye
- Buckwheat
- Climatic adaptations
- Soils adaptations
- Uses
- Study of plant
- Study of head
- Seed selection
- Seed testing
- Seed per acre
- Place in rotation

LEGUMINOUS CROPS
- Alfalfa
- Study of plant
- Sweet clover
- Red clover
- Mixtures
- Nitrogen fixation
- Preparation of soil
- Seed per acre
- Use in rotation

HAY CROPS
- The hay crop in New York
- Local survey of hay
- Study of grasses
- Study of plants (grasses)
- Germination tests
- Purity tests
- Cost of seed
- Seed per acre
- Preparation of soil
- Sowing
- Haymaking methods
- Hay machinery
- Storage of hay
- Orchard grass
- Red top

PASTURES
- Importance of pasture
- Methods of pasture
- Seeding
- Seed mixtures
- Care of pastures
- Pasture grasses

POTATOES
- Climate and soil
- Distribution and statistics
- Group classification
- Local survey
- Uses of potatoes
- Morphology
- Scoring
- Judging
- Home-grown seed
- Exhibits
- Cost of seed
- Greening
- Cutting
- Tillage machinery
- Dusting
- Harvesting methods
- Digging
- Sorting and grading
- Storage and holding
- Marketing
- Growers' associations
- Prices
- Insects
- Place in rotation

WEEDS
- Methods of growth
- Collection
- Seed identification
- Importance
- Removal of plant food
- Moisture removal
- Weed legislation

CROP ROTATION
- Reasons for rotation
- Typical rotations
- Cropping systems

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SOILS—CLASSIFICATION
- Rocks and rock weathering
- Residual soils
- Glacial soils
- Cumulose soils
- Colluvial soils
- Alluvial soils
- Locustrine soils
- Identification of soils

SOILS—PHYSICS
- Structure and texture
- Surface soil
- Subsoil
- Physical composition
- Soil separates
- Soil classes
- Loams
- Silts
- Clays
- Sands
- Humus
- Elements in the soil
- Composition of the earth's crust
- Supply of plant foods
- Germ life in the soil
- Aërobic bacteria
- Anaërobic bacteria
- Availability of plant foods
- Nitrification
- Denitrification
- Decay
- Putrefaction
- Oxidation
- Reduction
- Erosion
- Porosity of soils

ACIDITY, ALKALINITY, AND TESTING
- Acid salts in soils
- Carbonates
- Hydrochloric acid test
- Truog test
- Field signs of acidity

SOIL WATER
- Percolation
- Retention
- Hydrostatic moisture
- Optimum content
- Wilting point
- Plasticity
- Cohesion
- Flocculation
- Freezing and thawing
- Clod forming

SOIL AIR
- Effects
- Content
- Movement

SOIL TEMPERATURE
- Effects of color
- Moisture content
- Evaporation
- Decay of organic matter

TILLAGE
- Plowing
- Plows
- Depth to plow
- Condition of soil
- Harrowing
- Harrows and weeders
- Rolling and dragging
- Clod crushers
- Pulverizers
- Subsoiling
- Cultivation
- Cultivators

DRAINAGE
- Effects of drainage
- Principles
- Water table
- Types of drainage
- Underdrainage

SOIL AMENDMENT
- Counteraction of acidity
- Relation to legumes
- Release of plant food
- Sources of lime
- Effects on soil

GREEN MANURES
- Systems of green manuring
- Advantages
- Disadvantages
- Decay in the soil
- Other than leguminous crops

PLANT FOOD CARRIERS
- Sodium nitrate
- Ammonium sulphate
- Potassium sulphate
- Acid phosphate
- Forms of nitrogen
- Forms of potassium
- Forms of phosphorus
- Unit costs
- Commercial fertilizers
- Crop requirements

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ADDITIONAL TOPICS CONSIDERED IN 51 TO 75 PERCENT OF THE SCHOOLS IN FARM CROPS AND SOILS—(*Continued*)

PLANT FOOD CARRIERS—(*Continued*)
- Home mixing
- Time to apply
- Residual values

FARM MANURES
- Composition
- Horse manure
- Cow manure
- Sheep manure
- Hog manure
- Poultry manure
- Effects of feeding
- Effects of age
- Nitrification
- Rate of application
- Time to apply
- Place in rotation

Since the majority of teachers include at least the preceding topics, there is hardly a poverty of technology in the course. There are shown in the second most popular selection attention to essential principles, adaptation to State and local needs, and an increasing trend to technicality in soils and plant study. When botany, biology, or general science is included it seems overdone.

ADDITIONAL TOPICS CONSIDERED IN THE TEACHING OF 26 TO 50 PERCENT OF THE SCHOOLS IN FARM CROPS AND SOILS

CROPS
- General classification
- Botanical classification
- Root crops
- Fiber crops
- Truck crops
- Crops of the United States

THE CORN CROP
- Botanical classification
- Soft corn
- Local corn census
- Corn judging contest

OTHER CEREAL CROPS
- Origin and history of wheat
- Uses of oats, barley, rye, buckwheat, millet
- Climatic and soils requirements of millet
- Study of millet plant and head
- Varieties of wheat, oats, barley, rye, buckwheat, millet
- Variety tests of oats, barley, rye
- Seed selection oats, barley, rye, buckwheat, and millet
- Seed testing of wheat, oats, barley, rye, buckwheat, millet
- Improvement and breeding of wheat and oats
- Seed treatment for wheat, oats, barley, rye
- Care of seed of wheat and oats
- Seed per acre, wheat, barley, rye, buckwheat, millet
- Preparation of soil for wheat, oats, barley, rye, buckwheat
- Manuring of wheat, oats, barley, rye, buckwheat
- Place in rotation of wheat, oats, barley, rye, millet
- Sowing of wheat, oats, barley, rye, buckwheat
- Drills and planters for wheat and oats
- Tillage of wheat and oats
- Harvesting wheat, oats, barley, rye
- Tillage machinery for wheat, oats, barley, rye, buckwheat, millet
- Storage of wheat and oats
- Legal measures of wheat, oats, barley, buckwheat, millet
- Yields of wheat, oats, barley, rye, buckwheat
- Scoring wheat, oats, barley, rye, buckwheat, millet
- Judging wheat, oats, barley, rye, buckwheat, millet

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LEGUMINOUS CROPS
Nitrogen fixation by red clover, alsike clover, other clovers, beans, peas
Study of nodules on alfalfa, sweet clover, red clover
Inoculation methods with alfalfa and sweet clover
Use in rotation of sweet clover, red clover, alsike, and other clovers
Use in the soil
Feeding value of alfalfa, sweet clover, red clover, alsike
Study of the plant of sweet clover, red clover, alsike
Climatic and soils requirements
Liming of legumes
Varieties of alfalfa
Seed tests of alfalfa and clovers
Cost of seed
Preparation of soil for clovers, beans, and peas
Seed per acre for above crops
Clover mixtures
Other mixtures
Sowing methods
Time to sow
Nurse crops
Tillage
Harvesting
Yields of sweet clover, red clover, alsike, other clovers, soy beans, vetch
Diseases of alfalfa and clovers
Insect enemies of alfalfa

HAY CROPS
Method of growth
Red top
Kentucky blue grass
Canada blue grass
Oats and peas
Oats and barley
Cereal mixtures for hay
Baling hay
Marketing hay
Calculating contents of bales and stacks

SOILING AND SOILING CROPS
Soiling systems
Advantages
Disadvantages

PASTURES
Manuring
Blue grass
Red top
White clover

CABBAGE
Cabbage in the county
Varieties
Seed testing
Growing seedling plants
Preparation of soil
Manuring
Planting
Tillage
Thinning
Harvesting
Storing
Construction of pits
Marketing
Diseases
Insect enemies

POTATOES
Composition of the tuber
Drawing of the tuber
Varietal mixture
Northern grown seed

ROOT CROPS
Uses of mangels and turnips
Culture of mangels
Harvesting mangels
Storage of mangels

WEEDS
Crop adaptations
Botanical study
Crowding

CROP ROTATIONS
Single cropping
Alternating crops
Diversified cropping
Fallowing
Manure in the rotation

SOILS—CLASSIFICATION
Marine and loessial soils
Soils maps and surveys
Soils series and local survey

SOILS—PHYSICS
Microscopic examination
Chemical composition
Hydrolysis
Colloids
Leaching
Review of chemistry

Acidity, Alkalinity, and Testing
Alkaline salts
Ammonia test

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ADDITIONAL TOPICS CONSIDERED IN THE TEACHING OF 26 TO 50 PERCENT OF THE SCHOOLS IN FARM CROPS AND SOILS—(*Continued*)

SOIL TEMPERATURE
- Exposure
- Depth
- Season

SOIL AMENDMENTS
- Acid and basic radicals
- Effects of Ca and Mg on plants
- Effects on bacterial content

GREEN MANURES
- Relations to liming
- Effects
- System planning
- Field study
- System planning
- Local practices

PLANT FOOD CARRIERS
- Sources
- World supply
- Evaluating
- Effect on plants of N, K, P
- Potassium carriers
- Sulphur carriers

FARM MANURES
- Kinds of litter
- Uses of litter
- Burning
- Loss of ammonia
- Denitrification
- Preservatives
- Reinforcing manures
- Acid phosphate
- Floats
- Kainit
- Composting
- Handling manure heap
- Methods of spreading
- Crop adaptations
- Residual values

The trend of such a course as is offered by the third group of teachers must inevitably be toward the academic and informational. There are certain evidences of local adaptation, as in the introduction of cabbage, but much more of the effect of the text and college "subject" treatment. It is worth noting that there is as yet no consideration of crops that cannot be grown in New York.

ADDITIONAL TOPICS CONSIDERED IN THE TEACHING OF ONE-FOURTH OR LESS OF THE SCHOOLS IN FARM CROPS AND SOILS

CROPS
- Agriculture *vs.* horticulture

OTHER CEREAL CROPS
- Origin and history of
- Oats
- Barley
- Rye
- Buckwheat
- Millet
- Uses of
- Sorghum
- Kaffir corn
- Variety test of wheat, buckwheat, millet
- Seed selection of millet
- Improvement and breeding of barley, rye, buckwheat, millet
- Care of seed of barley, rye, buckwheat, and millet
- Preparation of soil for millet
- Manuring of millet
- Scoring millet
- Drills and planters for barley, rye, buckwheat, and millet
- Tillage of barley, rye, buckwheat, and millet
- Harvesting buckwheat and millet
- Harvesting machinery for wheat, oats, barley, rye, buckwheat, millet
- Storage of barley, rye, buckwheat, millet
- Elevator associations
- Legal measure of rye
- Standard grades of wheat, oats, barley, and rye
- Yield of millet

LEGUMINOUS CROPS
- Nitrogen fixation by soy beans and vetch
- Study of nodules on alsike, beans, peas, soy beans, vetch

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Symbiosis on leguminous crops
Method of inoculation for legumes other than alfalfa and sweet clover
Origin and history of alfalfa, sweet clover, red clover, alsike, other clovers, peas, beans, soy beans and vetch
Use in rotation of beans, peas, soy beans, vetch
Use in soil of leguminous crops
Feed values of clovers, beans, peas, soy beans, and vetch
Study of plant in other clovers, beans, peas, soy beans, and vetch
Climatic and soils requirements of minor legumes
Liming for beans, peas, soy beans, and vetch
Varieties of minor legumes
Variety tests of alfalfa, sweet clover, red clover, etc., to vetch
Seed tests of minor legumes
Cost of seed of minor legumes
Preparation of soil for soy beans and vetch
Legume mixtures (minor)
Time to sow peas, soy beans, and vetch
Minor legumes and nurse crops
Tillage of minor legumes
Yields of beans and peas
Diseases of minor legumes
Insect enemies of legumes other than alfalfa
Local survey of leguminous crops

HAY CROPS
Grass is king
Major and minor grasses

SOILING AND SOILING CROPS
Methods of soiling
Corn
Miller
Buckwheat

MISCELLANEOUS CROPS
Importance
Distribution
Uses
Culture
Harvesting
Enemies
Flax
Tobacco
Rice
Peanuts
Sweet potatoes
Sugar-cane

CABBAGE
Origin and history
Distribution
Classification
Uses
Transplanting
Marketing

CANNING CROPS
Canning methods
Canning industry
Growing canning crops
Tomatoes
Lima beans
Sweet corn

ROOT CROPS
Origin and history of mangels, turnips, carrots
Uses of carrots
Varieties of mangels, turnips, and carrots
Methods of growth of root crops
Structure of roots
Physiology
Planting of turnips and carrots
Culture of turnips and carrots
Harvesting
Storage
Enemies

WEEDS
Botanical classification

THE WOODLOT
Value
Products
Identification of trees
Tree weeds
Estimating value of lots
Rate of growth
Thinning out
Value of forests
Conservation
Forest fires
Planting trees
Reseeding
Cutting methods
Preservation of lumber
Pasture in the woodlot

Acidity, Alkalinity, and Testing
Organic by-products in the soil

PLANT FOOD CARRIERS
Nitrogen carriers
Phosphorus carriers
Manures (guano, etc.)
Kainit

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The introduction of the woodlot by the minority of teachers and the increased use of the local survey are worthy of commendation. On the other hand, in spite of those and other evidences of selective adaptation, it is clear that the minority of teachers are engaged in attempting to cover all the "ground" allotted to the subject by text writers, even to rice and sugar cane.

In general it may be said that there is an upper group of teachers making rather careful selection of content and a lower group who are pretty much slaves to the text. When it is remembered that approximately the same number of hours are devoted by the first group to a relatively few topics as are given by the second group to the "entire field," it is fairly evident that we have a range from full and thorough treatment to a smattering of information.

The fault of such a course as that offered by about half the teachers is that of the general subject text from which it is derived. To sell profitably a book must reach a large number of buyers. To reach them it must meet a wide range of needs. But at the same time it must be enclosed between two covers in portable form and at a reasonable price. Accordingly, it is almost certain to contain a great deal that is of no significance to a particular reader, and not enough with reference to particular needs. A course designed to touch the interests of every one from a New York orchardist to a Louisiana planter is not well adapted to the use of a small group of boys from a particular corner of one New York county.

B

POULTRY HUSBANDRY

TOPICS CONSIDERED BY FROM 76 TO 100 PERCENT OF SCHOOLS IN POULTRY HUSBANDRY

TYPES OF FOWL
- Origin of domestic fowl
- Egg type
- General purpose type
- Characteristics

BREEDS OF POULTRY
- Plymouth Rocks

BREEDING OF POULTRY
- Pure bred *vs.* mongrel

CULLING THE FLOCK
- Molting
- Vent
- Signs of weak constitution

INCUBATION
- Selecting eggs for hatching
- Care of eggs for hatching
- Taking off the hatch
- Natural incubation

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The minimum essentials upon which all teachers agree are certainly meager even from the point of view of the owner of a farm flock. Just why the origin of the fowl should be uniformly taught, while the Leghorn fowl is omitted, is difficult to see. Otherwise the practical emphasis is evident.

ADDITIONAL TOPICS CONSIDERED BY FROM 51 TO 75 PERCENT OF TEACHERS IN POULTRY HUSBANDRY

THE POULTRY INDUSTRY
- Importance
- In New York State
- In the community

OPPORTUNITIES IN POULTRY
- Markets

POULTRY AS A MINOR ENTERPRISE
- Farm poultry keeping

GETTING A START WITH POULTRY
- Starting with fowls
- Starting with eggs
- Starting with day-old chicks

TYPES OF FOWL
- Adaptations of types
- Meat type

POINTS OF A FOWL
- Naming and identification

EXTERNAL ANATOMY
- Feather tracts

BREEDS OF POULTRY
- Rhode Island Reds
- Wyandottes
- Leghorns
- Characteristics

JUDGING FOWL
- Judging laying hens

BREEDING POULTRY
- Heredity
- Inheritance
- Variation
- Inbreeding

CULLING THE FLOCK
- Pigmentation
- Condition
- Signs of vigor
- Disposal of slackers

NUTRITION AND PHYSIOLOGY
- Respiration
- Excretion

FEEDING PRINCIPLES
- Feeding standards
- Balancing rations for
  - Laying hens
  - Chicks
  - Growing stock
  - Breeding stock

FEEDING PRACTICES
- Quantities of feed
- Frequency of feeding
- Methods of feeding
- Watering methods
- Range feeding
- Use of green feeds
- Use of meat feeds
- Local feeding practices
- Practices of successful feeders
- College and station practices
- Cornell rations
- Grain mixtures
- Fattening
- Use of litter, grit, and shell

POULTRY FEEDS
- Survey of local feed supply
- Composition of feeds
- Nutritive ratio
- Grain feeds
- Costs

EMBRYOLOGY
- Evolution of the chick in the egg

INCUBATION
- Artificial incubation
- Heating
- Temperature regulation
- Ventilation
- Turning the eggs
- Testing the eggs
- Incubator cellars
- Construction
- Management
- Variations among breeds
- Selection of sitting hens
- Care and management
- Preparing the nest

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ADDITIONAL TOPICS CONSIDERED BY FROM 51 TO 75 PERCENT OF TEACHERS IN POULTRY HUSBANDRY—(*Continued*)

BROODING
- Artificial brooding
- Types of brooders
- Indoor brooders
- Outdoor brooders
- Brooder houses
- Heatless brooders
- Management of brooders
- Heating
- Regulation of temperature
- Ventilation
- Cleanliness and sanitation
- Natural brooding

CHICK RAISING
- Handling chicks from the hatch
- Marking
- Selection of strong chicks
- Separating the sexes
- Buying live chicks
- Shipping live chicks

HOUSING OF POULTRY
- Poultry house survey
- Types of construction
- Double span
- Single span
- Three-quarter span
- Monitor house
- Long house
- Colony house
- Portable house
- Materials of construction
- Making out lumber schedule
- Making plans of houses
- Ventilation
- Lighting
- Artificial lighting
- Floor space
- Placing of feeding devices
- Placing of watering devices
- Roosts
- Dropping boards
- Dust boxes
- Nests
- Broody coops

LIVE AND DRESSED POULTRY
- Practice in killing methods
- Dry picking

POULTRY EQUIPMENT
- Litter storage bins

MANAGEMENT OF POULTRY
- Laying hens
- Breeding stock

EGGS
- Selection of eggs
- Candling
- Grading
- Judging
- Storage
- Water glass

BUYING AND MARKETING
- Live poultry
- Eggs for market
- Eggs for hatching
- Day-old chicks

DISEASES, ENEMIES, VICES
- Preventive sanitation
- Protective measures
- Lice and mites
- Powders and sprays
- Methods of use
- Postmortem diagnosis
- Symptoms
- Treatment
- Roup
- Chicken-pox
- Gape worms
- Egg eating
- Feather pulling
- Cannibalism

RECORDS AND ACCOUNTS
- Egg records
- Trap nesting
- Feeding records
- Purchase and sale records
- Cash accounts
- Cost accounts

It appears that the majority of teachers are agreed upon a selection of topics ample for the conduct of the minor enterprise of poultry raising if insufficient to the commercial poultryman. It would be interesting to discuss the value of some items from that

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point of view. But, on the whole, the evidence of adaptation to a prevailing need is very encouraging.

ADDITIONAL TOPICS CONSIDERED BY 26 TO 50 PERCENT OF TEACHERS IN POULTRY HUSBANDRY

THE POULTRY INDUSTRY
- Extent
- Distribution
- Statistics and areas in United States
- In county

OPPORTUNITIES IN POULTRY RAISING
- Social features
- Health factors
- Labor requirements
- Investment
- Income
- Choosing a poultry farm
- Neighborhood
- Site
- Soil
- Drainage
- Location
- Topography
- Exposure
- Climate
- Transportation
- Methods of purchase
- Size of farm
- Qualifications of the poultryman

COMMERCIAL POULTRY KEEPING
- Egg farming
- Market poultry
- Breeding stock
- Day-old chicks
- Longhouse system
- Colony system
- Combination system
- Examples of commercial systems
- New Jersey
- Petaluma

POULTRY AS A MINOR ENTERPRISE
- Advantages
- Disadvantages
- The home flock
- Utility fowl

SPECIAL TYPES OF POULTRY
- Breeds of
- Ducks
- Geese
- Turkeys

POULTRY SURVEY
- Kinds
- Breeds
- Varieties
- Number
- Hens
- Pullets
- Cocks and cockerels
- Egg yields
- Markets
- Prices

GETTING A START WITH POULTRY
- Learning the business
- Need for experience
- Building up from a small beginning

TYPES OF FOWL
- History of types

POINTS OF A FOWL
- Chart and score card points
- Fancy points
- Utility points
- Scoring a bird

EXTERNAL ANATOMY
- Muscular control of feathers
- Growth of feathers
- Skin
- Scales
- Beak
- Eyes
- Ears
- Toes
- Claws
- Spurs

INTERNAL ANATOMY
- Practice in dissection
- Chart or diagram
- Reproductive system
- Digestive system
- Circulatory system
- Respiratory system
- Muscular system

BREEDS OF POULTRY
- History of breeds
- Minorcas
- Andalusians

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ADDITIONAL TOPICS CONSIDERED BY 26 TO 50 PERCENT OF TEACHERS IN POULTRY HUSBANDRY—(*Continued*)

BREEDS OF POULTRY—(*Continued*)
- Javas
- Dominiques
- Brahmas
- Cochins
- Orpingtons
- Dorkings

JUDGING FOWL
- Cocks and cockerels
- Pullets
- Point scoring
- Standard scoring
- Utility scoring
- Comparative judging
- Utility judging
- Age and sex characteristics
- Preparing for exhibition

BREEDING OF POULTRY
- Brewer's principles
- Mendel's law
- Mutation
- Unit characters
- Prepotency
- Sex inheritance
- Breeding systems
- Line breeding
- Out breeding
- Crossing
- Mating practices
- Size of mating pens
- Double matings
- Pullets *vs.* hens
- Selection of breeding stock

CULLING THE FLOCK
- Fat test of blood

NUTRITION AND PHYSIOLOGY
- Composition of the body
- Water
- Mineral matter
- Fat
- Protein
- Digestion
- Assimilation

FEEDING PRINCIPLES
- Evaluating rations
- Fattening rations

FEEDING PRACTICES
- Storrs rations
- New Jersey rations
- Dry mash mixtures
- Wet mashes
- For hens
- For chicks
- Scratch feeds
  - For hens
  - For chicks
- Use of bone
- House and yard feeding

POULTRY FEEDS
- Animal feeds
- Green feeds
- Minerals

EMBRYOLOGY
- Structure of the egg
- Diagramming the egg

INCUBATION
- Moisture content
- Delousing methods

BROODING
- Management of brooding
- Hens

CHICK RAISING
- Special feeding methods
- Yards and runs
- Shade and shelter
- Watering
- Exercise
- Weaning
- Range movement
- Protection from enemies
- Rats, weasels, skunks,
- Hawks, crows, owls
- Ailments
- Indigestion
- Scours
- Bacillary white diarrhea
- Feather pulling
- Cannibalism

HOUSING OF POULTRY
- Flooring
- Roofing
- Covering
- Dimensions of houses
- Arrangement
- Access
- Figuring costs
- Remodeling

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YARDING OF POULTRY
- Size of yards
- Shape of yards
- Fencing
- Shelter and shading
- Alternate yarding

POULTRY EQUIPMENT
- Feed hoppers
- Feed troughs
- Nests and trap nests
- Broody coops

MANAGEMENT OF POULTRY
- Winter management
- Summer management
- Broiler raising
- Cleanliness
- Care of utensils
- Exercise
- Value of droppings
- Disposal of droppings
- Preservation of droppings
- Treatment of water
- Banding

EGGS
- Handling
- Scoring
- Cold storage
- Preservation in lime or salt

BUYING AND MARKETING
- Coöperative buying of supplies
- Individual buying
- Coöperative selling
- Individual selling
- Dressed poultry
- Packing
- Shipment
- Retail
- Commission house
- Wholesale
- Branding products
- Advertising

DISEASES, ENEMIES, VICES
- Importance of losses
- Tuberculosis
- Ulcers
- Lameness

RECORDS AND ACCOUNTS
- Flock records
- Mortality records

POULTRY FARM MANAGEMENT
- Field study of poultry plants

The content relates more and more to the commercial poultry farm and the needs of the poultry expert. It is doubtful that the change is adaptive. It is rather due to the influence of an excellent standard text. Necessarily academic treatment grows.

ADDITIONAL TOPICS CONSIDERED BY ONE-FOURTH OR LESS OF THE TEACHERS IN POULTRY HUSBANDRY

THE POULTRY INDUSTRY
- The industry in foreign countries

OPPORTUNITIES IN POULTRY
- Hiring out
- Renting *vs.* buying

COMMERCIAL POULTRY KEEPING
- The system of Little Compton

SPECIAL TYPES OF POULTRY
- Varieties
- Side lines
- Commercial duck farming
- Diseases
- Guinea fowl
- Pheasants
- Pigeons
- Squab raising
- Runts and homers

INTERNAL ANATOMY
- Nervous system
- Skeletal system

JUDGING FOWL
- American standard of perfection
- Exhibition fowls
- Attendance at poultry show

BREEDING OF POULTRY
- Galton's law
- Attempts to control sex
- Alternating cocks
- Single matings

NUTRITION AND PHYSIOLOGY
- Growth
- Work
- Reproduction

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ADDITIONAL TOPICS CONSIDERED BY ONE-FOURTH OR LESS OF THE TEACHERS IN POULTRY HUSBANDRY—(*Continued*)

POULTRY FEEDS
- Condiments

EMBRYOLOGY
- Study of hard-boiled eggs
- Study of incubator eggs

HOUSING OF POULTRY
- Scoring of poultry houses

YARDING OF POULTRY
- Making plans of yards
- Calculating costs
- Plowing yards

POULTRY EQUIPMENT
- Feed bins
- Exhibit coops
- Crates and carriers
- Litter and feed carriers
- Dropping boards
- Fountains

BUYING AND MARKETING
- Value of advertising
- Methods

DISEASES, ENEMIES, VICES
- Intestinal parasites

POULTRY FARM MANAGEMENT
- Make plans of whole farm
- Cropping plans for poultry
- Production maintenance plans
- Standard provision for increase

The "subject" of commercial poultry keeping is dominant with the last group of teachers. Not quite the same generalization can be made with respect to poultry as with farm crops and soils. The standard length of course here is 90 double periods, but the variations from the standard in time are wide. Thus an abbreviation does not in the same measure indicate throughness. The range of differences is greater in poultry, as is reasonable if adaptation be sought, but the non-selective character of teaching among half the teachers is quite as evident.

C

FARM SHOP WORK

EXERCISES AND PROJECTS CARRIED OUT IN 76 TO 100 PERCENT OF SCHOOLS REPORTING IN SHOP WORK

DRAWING EXERCISES
- Lettering

SHOP EXERCISES
- Use of tools
- Sharpening tools
  - Edge tools
  - Saw filing
- Reducing stock to dimensions

ROPE WORK
- Tying knots

SHOP PROJECT
- (Elected)
- Poultry feed hopper

ADDITIONAL EXERCISES AND PROJECTS CARRIED OUT IN 51 TO 75 PERCENT OF SCHOOLS REPORTING IN SHOP WORK

DRAWING EXERCISES
- Use of drawing instruments
- Drawing lines
- Laying out plates

SHOP EXERCISES
- Adjustment of tools
- Oiling and care of tools
- Computing project costs
- Use of steel square
- Naming parts of tools
- Chamfering
- Beveling

LEATHER WORK
- Riveting

ROPE WORK
- Rope halter

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ADDITIONAL EXERCISES AND PROJECTS CARRIED OUT IN 26 TO 50 PERCENT OF SCHOOLS REPORTING IN SHOP WORK

DRAWING EXERCISES
- Isometric drawing
- Geometric figures
- Simple projections
- Types of joints

SHOP EXERCISES
- Identifying woods
- Computing lumber schedules

METAL WORK
- Soldering
- Drilling

WORKING DRAWINGS REQUIRED OF THE CLASS
- Bench hook
- Nail box
- Feed hopper

ROPE WORK
- Whipping
- Splicing

SHOP PROJECTS REQUIRED OF THE CLASS

(Individual)
- Bench hook
- Saw horse

(Group)
- Drawers for tools

MISCELLANEOUS
- Mixing paints and painting
- Mixing putty, cutting glass

ADDITIONAL EXERCISES AND PROJECTS CARRIED OUT IN ONE-FOURTH OR LESS OF THE SCHOOLS REPORTING IN SHOP WORK

WORKING DRAWINGS

REQUIRED OF CLASS
- Bread-board
- Book-rack
- China closet
- Laboratory table
- Step-ladder
- School plot (?)
- Saw horse
- Plate of letters and conventions
- Milking steel
- Parts of machinery
- Bag holder
- Whiffletree
- Germination boxes
- Potato plot
- Gary mold for cement posts
- Water-stand
- Oyster-shell hopper
- Oat sprouter
- Trap nest
- Poultry house

MADE BY INDIVIDUALS
- Wash-board
- Tabourette
- Supply rack
- Cupboard
- Kitchen stool
- Book-case
- Window-screen
- Baffle-board ventilator
- Nail box
- Tool box
- Bird house
- Farm gate
- Potato crate
- Cold-frame
- Marker
- Poultry show crate
- Hen coop
- Feed hopper
- Remodeled hen house
- Drinking platform
- Hog feeder
- Dairy barn
- Step-ladder

SHOP PROJECTS REQUIRED

GROUP PROJECTS
- Model for concrete posts
- Kitchen table
- China closet
- Work bench
- Shop partition
- Trap nests

INDIVIDUAL PROJECTS
- Bread-board
- Bird house
- Step-ladder
- Tool boxes
- Mallets
- Bag holder

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ADDITIONAL EXERCISES AND PROJECTS CARRIED OUT IN ONE-FOURTH OR LESS OF THE SCHOOLS REPORTING IN SHOP WORK—(*Continued*)

SHOP PROJECTS REQUIRED

INDIVIDUAL PROJECTS—(*Continued*)

- Beehive
- Wheelbarrow
- Skis
- Wagon jack
- Milking stool
- Potato crates
- Wash bench
- Marker for corn
- Brooder coop
- Feed hopper
- Exhibit coop
- Oat sprouter
- Drinking platform
- Berry carrying crate
- Harness vise

INDIVIDUAL PROJECTS (FOR USE OF SCHOOL)

- Ventilator
- Soil tube rack
- Book-shelves
- Book-case
- Fertilizer cabinet
- Sled
- Windows (put in)
- Furniture repaired
- Door lock (put in)
- Axe helve (fitted)
- Hen coops
- Evener
- Baseball bats
- Jumping standards

SHOP PROJECTS ELECTED

INDIVIDUAL PROJECTS

Wood Work

- Ironing board
- Book-rack
- Towel holder
- Piano stool
- Plant shelf
- Chairs (repaired)
- Nail box
- Brooder house
- Hen house
- Whiffletree
- Clothes-bar
- Water stand

Metal Work

Shop exercises

- Fire building
- Banking fires
- Drawing out
- Tapering
- Tempering
- Hack sawing
- Cold chisel
- Plating
- Pipe cutting
- Pipe fitting

Elected jobs

- Soldering utensils
- Ironing whiffletrees
- Drilling
- Cutting threads
- Making latch
- Tool cabinet bar

Concrete Work

Shop exercises

- Chemistry of cement
- Aggregates
- Mixtures
- Formulas
- Reinforcing
- Forms
- Floating

Construction jobs

- Piazza floor
- Sidewalk
- Fence posts

Leather Work

- Repair of belt
- Repair of harness
- Repair of halter
- Making leather halter
- Stitching ends
- Riveting straps

Rope Work

- End tying
- Crowning
- Lineman's rider
- Sheep bend
- Double bowline

Miscellaneous

- Varnishing projects and furniture
- Using shellac
- Waxing
- Mixing whitewash
- Setting glass
- Repairing locks
- Plastering

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The "fundamentals" upon which the great majority of teachers agree are very few in shop work. Exception can hardly be taken to them unless it be in the case of lettering, which would seem to be a relatively unimportant skill for a farmer of any kind. In so far as it needs to be taught it should be in direct connection with the few working drawings, and no great perfection insisted upon. That about half the teachers still spend the time of pupils in the drawing of geometric figures is another index to a lack of selective adaptation and dependence on a manual.

There is a reasonably close correlation between the working drawings and the shop projects carried out, indicating, perhaps, that the drawings are actually used—a sound practice in vocational teaching. In the required drawings and projects the old manual training influence is still perceptible in the bench hook, the bread-board, etc. It is fairly evident also that in some schools it might be difficult for a visitor to discover that the class engaged in shop work was an agricultural group, if he judged by the products made. Again, in some schools boys are being rather freely exploited to make repairs and furnish apparatus that should be furnished by school authorities. Undoubtedly some value may be derived for the boys in the doing of such work, but if, in so doing, they are deprived of a superior opportunity in the undertaking of work directly appropriate to vocational needs, then injustice is done. The motive derived from making a product appropriate to his own needs is, of course, always lost to the pupil. That is, perhaps, less significant than the other. He can learn something appropriate to home farm use by setting an axe helve or a pane of glass at the school and for the school, but the repairing of school chairs and desks, the making of cases, racks, and cabinets for school use savors strongly of exploitation. Less blame is to be placed upon the teacher, who must have the apparatus to do his work, than upon the local administrative authorities, who permit and encourage exploitation for the sake of saving money or effort. In the history of shop work there has always been a good deal of pressure brought to bear on the teacher to prostitute his teaching in such fashion. Though not conspicuous, it appears not entirely absent in the agricultural departments at present. One cause, apart from pressure,—and the nature of individual projects points somewhat toward its operation—is the

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lack of resource in the untrained and inexperienced, or possibly the lazy teacher, which makes him glad to accept any kind of work which will occupy the boys with tools during the appointed hours, regardless of its appropriateness to vocational education.

Some boys are undoubtedly in the agricultural course largely because it gives them a chance to "make things with tools." They feel no need of and no interest in the making and repair of agricultural equipment. Shop work should be provided for such boys, but not as part of the vocational course in agriculture.

Teachers have been urged in the past two years to extend their work in construction and repair to the inclusion of jobs done at home and on the farm, instead of confining it to what can be done in the school shop and on the school grounds. In the report forms teachers were asked to indicate projects or jobs done at home by the letter H. Only four cases appear. But it is not to be assumed that the detail was never omitted. The extent of home work directed under shop instruction is probably relatively small, however.

Distribution of Time

As an index to variations in emphasis and the approach to a standard there is given the report of the teachers on the number of teaching periods devoted to each of the major topics in Farm Crops and Soils, Poultry Husbandry, and Farm Shop Work. Since the number of teachers reporting for each topic varies, the returns are not quite comparable, but only such topics as are reported on by a reasonable number are used. The range from the lowest to the highest number of periods is given first; the median or middle number below which and above which the teachers distribute equally; then the modal number, or that reported by the largest single group of teachers.

The range is astonishingly large. In some measure it undoubtedly indicates local adaptation, as, perhaps, in the extreme case of 80 periods for potatoes, but that is not wholly to be depended on. In the testing of soils it would seem, for instance, that even the "sourest" of farming regions would hardly demand the emphasis given by 20 periods. Some differences are to be explained by the habit of teachers in connecting soils technology with crop technology rather than dividing the subject on accepted text lines. Thus,

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though one man devotes but a single period each to tillage and to manures, and another 15 and 20 periods respectively, it does not follow that the second has treated the study exhaustively and the first neglected it. If the tillage of corn and the manuring of corn be treated together, as seems appropriate in good teaching, then the need for time devoted to development and organization under the soils topic is greatly reduced, and vice versa. Since the totals in Poultry Husbandry vary more than in the other two studies, the differences are not quite so representative. The short selected course dealing with farm poultry is not set apart from the long "ground covering" and academic course. Variations in shop are not easily explained. As was noted in the topic outline, some aspects, such as concrete work, are very much neglected, and others, such as drawing, pretty uniformly adhered to. Some teachers are certainly allowing to the mechanics of drawing a greater proportionate share of time than can be justified from the standpoint of any farming vocation with which the surveyor is acquainted.

A

FARM CROPS AND SOILS

Topic	Range of periods	Median number	Modal number
Plant study	1–10	5	2
The corn crop	9–25	18	15
Other cereal crops	3–25	13	10
Leguminous crops	5–25	14	10
Hay crops	2–17	6	6
Soiling and soiling crops	1–5	2	1
Pastures	1–10	3	2
Cabbage	1–10	3	3
Potatoes	6–80	20	12
Root crops	1–5	4	5
Weeds	2–10	5	5
Crop rotation	1–12	5	2
Soils physics	3–25	10	8
Acidity, alkalinity, testing	2–20	6	6
Soil water	3–12	8	8
Soil air	1–4	1	1
Soil temperature	1–4	2	1
Tillage	2–15	6	5
Drainage	1–9	3	3
Soil amendment	1–18	4	4
Green manures	1–10	3	3
Plant food carriers	6–20	10	10
Farm manures	1–20	7	7

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B

Poultry Husbandry

The poultry industry	1–4	1	1
Opportunities in poultry	1–3	2	2
Commercial poultry keeping	1–5	2	1
Poultry as a minor enterprise	1–5	1	1
Special types of poultry	1–10	3	2
Poultry survey	1–5	2	1
Getting a start with poultry	1–3	1	1
Types of fowl	1–5	2	2
Points of a fowl	1–4	1	1
External anatomy	1–5	1	1
Internal anatomy	1–5	2	2
Breeds of poultry	1–8	4	5
Judging of fowl	1–13	4	2
Breeding of poultry	1–20	3	3
Culling the flock	2–11	4	2
Nutrition and physiology	1–5	2	1
Feeding principles	3–17	5	5
Feeding practices	2–11	5	5
Poultry feeds	2–10	2	2
Embryology	1–5	2	1
Incubation	3–13	6	5
Brooding	1–8	5	5
Chick raising	2–10	4	3
Housing of poultry	3–25	5	5
Yarding of poultry	1–3	2	1
Poultry equipment	1–8	1	1
Management of poultry	2–11	3	2
Live and dressed poultry	1–6	3	2
Eggs	1–6	3	5
Buying and marketing	1–5	3	2
Diseases, enemies, vices	1–8	3	2
Records and accounts	1–15	2	2
Poultry farm management	1–8	2	1

C

Shop Work

Drawing exercises	2–20	6	5
Working drawings	2–18	7	5
Shop exercises in wood	4–20	10	10
Shop projects in wood	5–72	35	35
Metal work	2–17	5	2
Concrete work	3–8	4	3
Leather work	2–10	5	4
Rope work	2–10	6	5
Miscellaneous	1–10	3	2

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Texts and References

Most frequently used texts and references may serve as a further index to the technological content of the course. In a large number of plans, of course, submitted by teachers it is still possible to recognize the text used. That is particularly true in certain subjects, notably farm management, wherein an exceptionally able text exposition has largely served to define the course. The books most frequently reported by teachers in 63 schools are listed below, all except fruit growing being reported quite completely.

Poultry Husbandry

Author	Title	Number schools
Lewis	Productive poultry husbandry	54
Lippincott	Poultry production	5
	And four others	

Vegetable Gardening

Watts	Vegetable gardening	21
Lloyd	Productive vegetable gardening	17
State Department of Agriculture	Vegetable growing in New York	14
	And six others	

Farm Shop Work

Roehl	Agricultural woodwork	38
Roehl	Farm shop work	26
Roehl	Harness repairing	4
	And three others	

Farm Crops and Soils

Montgomery	Productive farm crops	43
Wilson and Warburton	Field crops	7
Lyon	Soils and fertilizers	16
Weir	Productive soils	7
	And ten others	

Animal Husbandry and Dairying

Harper	Animal husbandry for schools	28
Eckles and Warren	Dairy farming	17
Washburn	Productive dairying	10
Van Slyke	Modern methods of testing milk	6
Plumb	Types and breeds of farm animals	6
Plumb	Beginnings in animal husbandry	6
Harper	Manual of farm animals	5
Wing	Milk and its products	4
	And twelve others	

Fruit Growing

Sears	Productive orcharding	8
	And two others	

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Author	Title	Number Schools
Agricultural Engineering		
Davidson	Agricultural engineering	23
Davidson and Chase	Farm machines and farm motors And six others	6
Farm Management		
Warren	Farm management And one other	51

On the whole, the evidence points to a rather systematic subject development of course, modified and adapted to a greater or less degree to meet the needs of communities and the project interests of boys. But as yet community needs do not dominate in the selection of content, nor do project interests determine its organization. The trend is in that direction, but the norm of state policy is not yet the norm in teaching.

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HOMEMAKING

CHAPTER X

AIMS

Official Statements

THE first statement of aim from official sources discovered by the surveyor is found in a bulletin of May 1, 1913. The statement is "such schools train young people . . . for the household activities of life in the open country." While the earlier organization of homemaking in connection with agriculture prevailed (until 1919), such a definite statement indicates that the purpose was to serve farmer's daughters. As a matter of fact, in the publications put forth by the division from 1913 to 1919 with regard to the organization and conduct of schools of "agriculture, mechanic arts, and homemaking," discussion of homemaking is conspicuously absent. Homemaking means "a woman teaching cooking, sewing, and perhaps some book work."

In November of 1919, after the amendment to the law which has been cited was passed, the division published a bulletin on "State-aided High School Departments of Homemaking," a genuinely helpful and reasonably comprehensive statement of the policy, plan, and requirements of the vocational course. In that bulletin the following statement of aim appears:

"The purpose of the homemaking department is to offer to pupils of secondary school age a well-rounded course embodying the general principles of household organization and management with opportunity for laboratory practice. The course as planned will not only prepare the girl to manage her house, but will also lay a foundation for wage-earning occupations which have their origin

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in homemaking activities." The latter part of the statement indicates a possible interest in guidance into such occupations as millinery, dressmaking, catering, dietetics work, nursing, institutional management, etc. The statement, barring the ornamental phase "well-rounded," is clear and reasonably specific.

In March, 1921, the specialist in homemaking of the Division of Vocational and Extension Education prepared the following statement of her conception of the aim of the homemaking course to the surveyor:

1. To assist girls in performing their present home activities more intelligently and more efficiently.

2. To increase their sense of responsibility for the welfare of the home.

3. To raise the standards of the present home and of the future home.

4. The aim is preparatory in so far as preparation is derived from the fundamental processes involved in the conduct of a majority of homes.

Although the statement is very general, it tends to emphasize two important aspects of vocational teaching purpose that are often overlooked. The first is that the girl is not merely a prospective adult homemaker, but a present member of society and her home unit, whose activity as such is worthy of consideration in itself. The second, that efficient skill and knowledge must not be dissociated from responsibility and appreciation. To those points of view the surveyor most heartily subscribes. But the standards by which content is derived do not appear clearly in any statement presented. Some insight as to the probable standards may be derived from a further statement by the specialist. "Homemaking courses," she said, "will be approved—(1) if the plan shows an appreciation of the scope of the subject, and (2) if it will stand examination in the light of the known community needs and conditions."

Not much, of course, is to be derived from "the scope of the subject," since the scope of the subject is very far from a matter of agreement as yet. But at least something of the scientific and social implications of homemaking activities must be developed. Evi-

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dently from the second statement the community needs should largely determine what is taught, community opportunities be a factor in the methods of teaching.

Statements of Teachers

All the 46 teachers who replied to the questionnaire considered it their duty to prepare girls to be homemakers. Twenty-five also considered it a duty to prepare girls for college.

Forty-four replied to the question, "What do you regard as the purpose of your teaching?" There was considerably less fogginess and divergence than in the case of teachers of agriculture. In every case the vocational objectives or definite preparation stood out as the major consideration. But particular aspects were emphasized variously.

Skills	14	Systematic organization	3
Knowledge	7	Growth in power	2
Interest	6	Contribution to citizenship	2
Ideals	5	Preparation for advanced work	2
Community service	5	Preparation for related vocations	2
Managerial ability	4	Health benefits	2
Appreciation	4	Individual happiness	2
Immediate values	4	Social progress	1

The majority regarded homemaking education as direct education variously useful in the several aspects of life; and not as gymnastics for "hand and brain," to accomplish at one stroke all the objectives of all education. In the matter of the philosophy of objectives the homemaking teachers demonstrate the effect of professional training to better advantage than do the teachers of agriculture.

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CHAPTER XI

SCHOOLS OF HOMEMAKING

Distribution

In 1920–21 homemaking instruction under State aid, according to accessible records, was offered in 78 public day schools of secondary grade. Of those schools, 4 were under the intermediate school organization, 74 under the vocational school organization. Of the latter 45 associate departments of homemaking with departments of agriculture, 29 are schools of homemaking only. Fifty-five schools are located in places of under 4,500 population, 23 in larger centers. In the smaller places are the 4 intermediate schools, 38 vocational schools of agriculture and homemaking, 13 schools of homemaking. In villages and cities employing a superintendent are no intermediate schools, 7 schools of agriculture and homemaking, 16 schools of homemaking only. Or of the State-aided schools in homemaking 29.48 percent are in the larger places, as against 12 percent in the case of agricultural schools.

Since the regulations of the Division of Vocational and Extension Education have made it possible (1919) to receive aid for homemaking apart from agriculture, the tendency to extend aid to villages and cities for homemaking is marked. Previous to that change of regulation homemaking work was aided only in connection with agriculture, and the distribution of schools for the two types of teaching was practically identical and quite clearly rural. In 1918–19, for example, the number of urban high schools aided was 7; of rural, 29; 1919–20 urban, 8; rural, 32; 1920–21 urban, 23; rural, 55. In the list of approved applicants for aid in 1921–22 the numbers are: urban, 31; rural, 74. Considering only the figures from 1918–19 to 1920–21, the percentage of increase in aided urban

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schools is 228.57 percent, of aided rural schools, 89.65 percent. No account is taken of continuation and part-time work in homemaking, to which the State lends aid. Such work is confined wholly to urban communities.

So far as the significance of homemaking education goes, there is no question but that the need for it is as great in the city as in the country—probably in certain aspects greater. But on the basis of relative ability to establish and maintain schools of homemaking the present system of allotting State aid, namely, to such as meet the requirements of the State, there appears inequity.

The geographic distribution of homemaking schools is, of course, much less significant than in the case of agricultural schools. Homemaking instruction is a need of every community; agricultural instruction is not. But for the sake of comparison the distribution by counties and by sections of the State is shown as with agricultural schools. The effect of the earlier association of the two types on instruction in rural communities is fairly evident.

WESTERN SECTION OF NEW YORK

County	Intermediate schools	Schools of agriculture and homemaking	Schools of homemaking	Urban schools	Total
Chautauqua	0	5	0	1	6
Cattaraugus	0	3	1	0	4
Erie	0	4	1	2	7
Wyoming	0	2	0	1	3
Alleghany	0	1	1	0	2
Livingston	0	1	1	1	3
Genesee	0	1	0	1	2
Steuben	0	2	2	2	6
Monroe	0	1	0	0	1
Cayuga	0	1	0	0	1
Tompkins	0	2	1	0	3
Seneca	0	1	0	0	1
Ontario	0	0	0	1	1
Wayne	0	0	0	1	1
Chemung	0	0	0	1	1
	0	24	7	11	42

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NORTHEASTERN SECTION OF NEW YORK

Jefferson	0	0	1	0	1
Franklin	0	1	0	1	2
Saratoga	0	1	0	0	1
Lewis	0	1	0	0	1
Clinton	0	1	0	0	1
Oswego	0	1	0	0	1
St. Lawrence	0	0	0	1	1
Washington	0	0	0	1	1
	0	5	1	3	9

SOUTHEASTERN SECTION OF NEW YORK

Chenango	0	2	1	0	3
Sullivan	1	3	0	0	4
Otsego	2	2	1	0	5
Delaware	0	1	0	0	1
Madison	0	0	1	0	1
Ulster	0	0	1	1	2
Suffolk	0	0	1	0	1
Dutchess	0	1	0	0	1
Columbia	1	0	0	1	2
Broome	0	0	0	2	2
Rensselaer	0	0	0	1	1
Schenectady	0	0	0	2	2
Orange	0	0	0	1	1
Rockland	0	0	0	1	1
	4	9	5	9	27

Counties and sections are thus quite unequally represented. The western section again appears the most progressive in the development of the type of vocational education. But, in contrast with agriculture, work in homemaking of a practical sort, particularly in sewing, is to be found in a large number of high schools to which no State aid is granted. Even in the rural districts such courses outnumber by a small margin those which are aided by the State. Reference to the report on high schools will discover, however, the very small minority of high schools in which any sort of instruction in homemaking is offered. The more detailed study is

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confined to State-aided schools and mainly to those of the rural communities.

Growth

The history of State-aided schools of homemaking is based upon incomplete records for the past five years only.

Schools in operation	1920–21	1919–20	1918–19	1917–18	1916–17
Northeastern section	9	5	6	4	7
Southeastern section	27	11	12	13	12
Western section	42	24	18	14	11
Total	78	40	36	31	30
Last year of aid	0	1	1	7	2
Median enrolment all schools	19	22	21	21	19
Median enrolment rural schools	19	20	18	21	19
Median salary of teachers	$1,200	$850	$750	$650	$650

Duration of school under aid in the case of existing schools—one year, 36; two years, 8; three years, 11; four years, 4; five years or more, 19. In the case of defunct schools, one year, 7; two years, 4.

A relatively rapid growth only in the past two years, since the removal of the requirement for association with agriculture, is notable. One hundred and five schools are listed for aid in 1921–22. Though the increase from 1916–17 to 1919–20 was but 33⅓ percent, the total increase to the present is more than 200 percent. A further increase in median enrolment for all schools is to be looked for with the addition to the list of urban schools. In the rural schools it remains relatively stable. The increase in salaries is steady, with a marked jump for the past year because of the greater number of teachers now ratable as "first vocational teachers," but the dollar rate of increase is less than with agricultural teachers, because of lower qualification standards and lack of Federal aid.

The war hit the homemaking schools hard, but not so severely as the agricultural schools, because the demand for military service did not affect women in the same measure as men. Schools where

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the work was dropped previous to 1919–20 correspond with those reported in agriculture. The abandonment of the agricultural course meant the loss of all aid for vocational work. Only one school has given up its aid under the new provision of 1919. Since homemaking is quite as appropriate to village girls as to farm girls, unwillingness to spend anything for the outsider has not been a factor in the decease of homemaking departments. Specific adaptation of the course to local variations in needs is less a factor in success with homemaking than with agriculture. Thus the principal causes operative to the mortality of agricultural schools are of small effect in homemaking and the mortality is relatively small.

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CHAPTER XII

THE TEACHING OF HOMEMAKING

Distribution of Lessons

TEACHING of homemaking was observed in April and May of 1921 in 25 of the 55 schools organized in places of under 4,500 population. The number of teachers observed in action was 27, of whom 24 were the regularly employed vocational teachers, one a substitute, and two apprentice teachers enrolled in the teacher training department of the State College of Agriculture. The number of lessons observed was 55, of which 4 were classroom lessons, 7 were classroom and laboratory lessons, and 44, or 80 percent, were purely laboratory lessons.

The lessons classify as follows:

Sewing and dressmaking laboratory lessons	28
Dressmaking classroom and laboratory lessons	2
Cookery laboratory lessons	13
Cookery classroom and laboratory lessons	5
Household decoration laboratory lessons	2
Household decoration classroom lessons	2
Household management laboratory lessons	1
Household management classroom lessons	1
Household physics classroom lessons	1

Observers spent the full day at school and observed all teaching of homemaking during that time. Two facts are significant in the classification of lessons observed: (1) Of all lessons, 54.45 percent were in sewing, 38.33 percent in cookery, and 7.12 percent in the upper class studies of the course. That is, in so far as the observation of so large a proportion of schools is representative of teaching conditions, more than nine-tenths of the work offered is in the first two years of the vocational program, and more than half of all the work is in sewing. (2) Of all lessons observed, 4 of 5 were purely laboratory lessons, in sewing 14 of 15 lessons purely laboratory, of

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cookery lessons 7 in 10 were purely laboratory, in other subjects 3 lessons in 7 were laboratory lessons.

Dominance of Cooking and Sewing

The rapid increase of schools—nearly 100 percent from 1919–20 to 1920–21—with proper habit of starting the school with only the subjects of the first two years, may in part account for the first condition noted. But that it is not a new condition is indicated by the figures for subject years offered during the four years preceding, wherein the rate of development of new schools was relatively slow. First-year work constituted 39.38 percent of all offerings; second year work, 35.91 percent; third-year work, 17.37 percent; fourth year work, 7.24 percent, or more than three-fourths of all teaching was offered in subjects of the first two years.

Except for the prevalence of sewing and cooking equipment, there is no further evidence to offer for the prevalence of the second condition. It is recognized that the way to teach a girl to sew is to have her sew; to teach her to cook, to have her cook; further, that it is desirable to develop a good deal of the technology of sewing and cooking in a laboratory environment. All lessons recorded as "classroom and laboratory" were so conducted. In the purely laboratory lessons little attempt was made at developing any technological insight or even factual knowledge. The evidence is quite clear that laboratory lessons in homemaking in general aim at a mechanic skill rather than at a skill guided and made meaningful by technology in a field where adaptiveness to a wide range of situations is needful. There is some evidence also that laboratory work as now conducted tends to subordinate even the acquirement of skill by the pupil to the finishing of a product.

On that basis the generalization is offered that homemaking at present means for most of our girls in most of our schools mainly making garments out of cloth and pastries out of flour.[1] With the

[1] Though the foregoing generalization in respect to the homemaking which is actually taught to our girls in the rural high schools appears to be abundantly justified, and indicates a state of affairs far from ideal in a field of study offering large opportunities for developmental teaching, yet it is fair to note two considerations that may be in some measure palliative:

(1) One of the aims of the work in homemaking put forward by the State supervisor and well founded in educational theory is that teaching should give

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rich possibilities in scientific and social implication of dominant activities in the life of most women the condition seems unfortunate. Much of the "making" practice, if unsystematized and uneconomical, the farm and village home can furnish. The controlling and enriching knowledge it cannot furnish; that the school should furnish in association with economical acquirement of skill. At present it is not doing so.

Breaking of Development

The condition were not so discouraging if the laboratory work of sewing and cooking made up but a part of a four-year course completed by the girls—that is, if the present vocational program actually functioned. But we have to face the fact that 3 of every 5 girls have left school by the end of the second year. And, second, there is evidence that the present course is serving as a course for relatively few of even those girls who persist in school for a longer period. That rather homemaking tends to be treated by principals as a group of subjects elective to girls of any grade who can spare the time from academic subjects for one or two of them. It is fair and reasonable that upper class girls who are soon to leave school shall be permitted to get what homemaking they can when a

definite consideration to the present and immediate needs of the pupils taught. The reports of the girls themselves indicate that the preparation of foods and the making of garments are common home tasks in their present lives. Attention, then, to cooking and sewing is appropriate. Connection is made thereby with the present home life of the girls. But the extraordinary emphasis given to those phases of homemaking and the failure to develop thought content that is appropriate to the problems of food preparation and garment making are not by the fact justified.

(2) The report on teaching in other subjects of the high school program, wherein skills are not primary objectives, and wherein the development of thought content is professedly foremost, shows that there is normally far less connection with the present life needs and experiences than is the case with sewing and cooking. Further, the teaching is on a plane that cannot be regarded as superior in its developmental methods to that in the cooking and sewing. But because teachers of homemaking do no worse than many teachers of science, English, or history, leaves no reason for satisfaction in the state of affairs revealed. The point is made only that academic opponents of obviously useful studies may note that a chief weakness in the teaching of homemaking is exactly that which is characteristic of the teaching in long-established subjects of the rural high school program. The need for reorganization of content, for helpful supervision of teachers in service, and for professional preparation of teachers, is no less evident in the standard constants than in the vocational work in homemaking.

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new course is offered. But that such is the sole factor accounting for the following attendance and enrolment facts is extremely doubtful:

Grades in attendance on observed lessons	Number of lessons in the several subjects				
	Total	Sewing	Cooking	Dress-making	Other
Five and six	1	..	..	..	1
Six only	1	1	..	..	..
Seven only	2	2	..	..	..
Eight only	1	..	1	..	..
Eight and nine	3	2	..	1	..
Eight, nine, and ten	1	..	..	..	1
Nine only	5	1	3	1	..
Nine and ten	8	3	3	1	1
Nine, ten, and eleven	4	1	2	1	..
Nine, ten, eleven and twelve	7	2	5	..	..
Nine and eleven	2	..	2	..	..
Nine and twelve	1	1	..	..	..
Ten only	4	2	..	2	..
Ten and eleven	4	2	1	..	1
Ten, eleven and twelve	2	..	..	1	1
Ten and twelve	1	..	..	1	..
Eleven only	4	1	1	1	1
Eleven and twelve	4	..	..	3	1

ENROLMENT BY GRADES IN HOMEMAKING FROM THE QUESTIONNAIRE CARDS SENT IN BY PUPILS FROM 50 SCHOOLS IN PLACES OF UNDER 4,500 POPULATION

Grade	Number pupils reporting	Percent
IV	1	..
V	0	..
VI	7	..
VII	11	..
VIII	71	8.24
IX	272	31.55
X	247	28.65
XI	160	18.56
XII	100	11.60
Graduates	2	..
Specials	1	..

From the first table it is evident that 30 of the 55 lessons enroll pupils from grades not belonging to them if the vocational sequence be pursued. Twenty of the 36 lower class lessons enroll upper

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class pupils—a condition to be accounted for by the elective hypothesis suggested for new schools; but 10 of the 19 upper class lessons enroll pupils from the lower classes—a condition hardly to be explained as in accord with the vocational program, but clear enough under an elective scheme ignoring prerequisites.

SCHOOLS ENROLLING IN HOMEMAKING THE SEVERAL GRADES

Grade	Number schools	Percent
IV	1	1
V	0	0
VI	2	4
VII	4	8
VIII	20	40
IX	50	100
X	47	94
XI	37	74
XII	32	64
Graduates	2	4
Specials	1	2

From the second table the only suggestions derivable are that the larger than normal proportion of upper class pupils enrolled is due either to a superior holding power in homemaking or to the presence of upper class pupils in lower class studies. The second is the only tenable explanation in view of the foregoing and following data.

From the third table it is evident that a much larger proportion of schools is enrolling pupils in homemaking from the upper classes than is offering upper class work. Since even the figures for the four years preceding 1920 show less than 20 percent offering third year work and less than 10 percent offering fourth year work, the percentages of 74 enrolling juniors and 64 enrolling seniors indicate that the free election of homemaking subjects and not the course is common.

Conversation with teachers and principals has served to give the impression which the data go to confirm. Administratively local authorities appear not to distinguish between the "non-vocational" and unaided homemaking studies and the "vocational" or aided studies, except that the State helps pay for the latter but won't help with the former. That a four-year course on practically a half-time basis for the pupils is necessary is by no means certain, but a developmental program, such as appears to be contemplated

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by the division, is certainly desirable if more than one year of work is to be offered. If elective groupings are to be permitted apart from the completion of the course, as may be desirable in view of the high mortality in high school enrolment, then the course of study should be organized to meet such a condition.

Aims of Lessons

The objects of lessons were usually to be discovered at least in terms of a product to be made or a process to be worked through. In no case was the object stated by a pupil, but in 11 cases the teacher made a brief statement of objectives to the class. In 11 cases the teacher told the observer what the purpose of the lesson was. In all other cases the observer judged of the aim for himself. In seven cases it was difficult to discover any aim. Individual pupils working on diverse articles of quite different sorts in continuation of work previously started made it impossible to formulate any lesson aim for the group.

Observers report aims as follows:

Sewing and dressmaking

To make a garment	2
Continuation of individual tasks	8
To teach the class how to make a placket	1
To teach class how to put in sleeves	1
To teach how to choose a pattern for a wash dress	1
To teach the importance of hygienic clothing	1

It is noteworthy that the statements indicate consideration of the pupil first in only two cases in seven. That the judgment is not wholly unfair is indicated by the teaching procedure later reviewed.

Cooking and other lessons

To prepare and serve a meal	5
To make cookies	4
To make raised bread	1
To make thickening for lemon filling	1
To make frosting	1
To teach the making of salads and dressing	2
To teach preparation and use of gelatin	1
To teach how to take an inventory	1
To organize previously acquired experience	2
To stain a table	1
To clean the range and stove-pipe	1
To clean the laboratory	1
To "cover" the topics in the text	3

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The attitude of the class was reported under four headings:

Attentive—meaning eager interest;

Orderly—attending to business in normally interested fashion;

Indifferent—not interested but making no disturbance;

Disorderly—inattentive and disturbingly active in ways not germane to the lesson.

	Attentive	Orderly	Indifferent	Disorderly
Classroom lessons.....	0	2	2	0
Classroom and laboratory	0	5	0	2
Laboratory lessons.....	1	37	5	1
Total.....	1	44	7	3

That is a somewhat better showing than is made in the report on instruction in academic subjects, but not so good as that made in agriculture.

PORTION OF CLASS KEPT BUSY

	All	Four-fifths	One-half	One-quarter
Classroom lessons.....	1	0	1	2
Classroom and laboratory	7	0	0	0
Laboratory lessons.....	41	2	1	0
Total	49	2	2	2

The showing made here is the best reported from high school teachers. That work was ready and promptly undertaken is confirmed by further data. The nature of the individual tasks and projects makes it easy to keep all pupils busy in the laboratory work in homemaking. In the more difficult work of classroom instruction teachers were not so successful. Further, there is evidence that being busy means in many cases being merely physically active,

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with mental activity, relevant to the work at least, at a low ebb. Note the following report in that connection:

NATURE OF ACTIVITY OF PUPILS

Pupils active in	Classroom lessons	Classroom and laboratory	Laboratory lessons	Total
Contribution	0	1	0	1
Criticism	0	0	0	0
Questioning	0	3	23	26
Contribution and criticism	0	0	1	1
Contribution and questioning	0	2	2	4
Criticism and questioning	0	0	1	1
Contribution, criticism and questioning	0	0	10	1
Not active in any of those forms	4	1	19	24

In nearly half the cases the class was not active at all in ways indicating mental activity calling for guidance. In the form of greatest activity—questioning—the majority of questions were of the sort, "What shall I do now? How am I going to do this?" Thus the "business" of pupils is not an index to a high educative value in the activity carried on.

ARRANGEMENTS AND PROMPTNESS

Observers were asked to report upon special provisions or deficiencies in economy of time or effort. The report summary follows:

No special provisions or deficiencies	18
Work assigned and materials ready	19
Materials laid out and ready	12
No plan or preparation at all	4
Distracting objects placed in plain sight	1
Teacher distributed unrelated examination papers	1

TIME WASTED BEFORE A START WAS MADE

None wasted	46
Four minutes or less	7
Ten minutes	2

The evidence is clear that homemaking teachers are generally ready to go to work with the start of the period. No class of teachers is their superior in that respect.

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Assignments

Assignment was made during class period or had already been made for the next lesson in 27 of the 55 cases; none was made in 24 laboratory lessons, 2 classroom and laboratory lessons, and 2 classroom lessons. In the 15 cases where assignment was made in the presence of the observer it was given at the end of lesson 14 times, at the beginning once. Time given to assignment, one minute or less, 6 cases; three minutes, 1 case; five minutes, 8 cases. It was given orally 14 times and written on the blackboard once. Pupils made written record of the assignment in 5 cases. It was mere text reading in 5 cases; reference to several book sources in 1 case; reference to persons, 2 cases; reference to objective data, 7 cases. Five times the assignment was a direct development from the work of the day.

All assignments, whether given before the observer or not, were classified as follows:

Group (the same for everybody)	16 cases
Individual (divided responsibility)	11 cases
Taking the form of a project or problem	15 cases
Taking the form of a task to be done	12 cases

In 4 cases no guidance at all was given; in 17 cases directions were given; in 6 cases suggestions as to procedure.

There is conspicuous lack of assignment. But with the lessons in sewing, of course, there is ordinarily the tacit understanding that the incompleted work is to be taken up next time. So long as technology is neglected, no necessity for formal assignment arises, except when a new departure is contemplated. When teachers of homemaking do make an assignment, they evidently take as much pains as other teachers in the matter.

Planning

Teachers gave evidence, in the form of a written lesson plan or blackboard outline, of planning for the lessons observed in only one case in four; 10 times in laboratory lessons, and 4 times in laboratory and classroom lessons. Evidence of definite preparation in content instruction of the day was observed in 22 cases; 15 times in laboratory; 6 times in classroom-laboratory; and once in classroom lessons.

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The condition is not far from that normal to high school teaching, but is nevertheless by no means creditable.

Preparation of Pupils

The class, on the other hand, showed less preparation than the teacher. In only 17 cases was the lesson obviously prepared by the class—twice in recitation and 15 times in laboratory. In the latter case preparation was recorded when girls brought with them the materials they needed and went ahead with work largely on their own initiative. A common opinion appears to exist, though figures cannot be adduced in proof, among teachers of homemaking, that they are not expected to require preparation of lessons as other teachers do, for the reason that pupils work longer periods than in the academic studies. Two teachers told the surveyor that the law would not permit them to assign problems calling for outside preparation. Of course, there is no such provision in law or regulation. But if pupils are carrying heavy schedules in hours, as often they do under the system which makes vocational study "extra," there is no reason that part of the time should not be used for supervised study in preparation. In most schools, particularly with lower class pupils, guided study during a part of the regular periods would be of decided advantage. Agricultural teachers make a practice of it in cases. There is no record of a homemaking teacher conducting supervised study.

System and Unity

Definite system and unity in the lesson are noted by observers in 14 cases; clear lack of it in 5. The undertaking of the making of a known product tends to give system to the pupils' procedure in itself, so that in the majority of cases observers made no report in the matter. In classroom procedure, however, system and unity are no more common with homemaking teachers than with others. Five only of the 11 lessons involving class recitation exhibited unity.

Types of Lessons and Procedures

In lessons involving recitation the types observed were text-reading 4; development 2; topic discussion 2; review 2. The num-

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ber of lessons is too small for generalization, but so far as the indications go, homemaking recitations are of much the same sort as found in the academic subjects.

The frequency of various procedures in classroom work is as follows:

Question and answer	9
Telling by the teacher	4
Note taking by pupils	4
Blackboard work by pupils	6

Relatively the use of the blackboard is more frequent than with agricultural teachers, note taking more conspicuous, and the resort to the lecture method less frequent.

In classroom lessons concreteness is rather more evident than in the run of academic subjects, though less so than in agriculture. Clear objective illustration (as with a dress on a form) was given in two cases, and reference made to pupils' individual experience in homemaking in six.

The teachers of homemaking in classroom work, like most other teachers, gave no encouragement to initiative on the part of pupils, but did give heed to evaluation of data in five cases and to organization in two. There is room for much improvement in those essentials.

The laboratory project was the prevailing type in the laboratory lessons. In such the pupil engages in the motivated achievement of a material product, such as a dress or a cake, which is of some significance to her in the result. Many of these projects may, in their initiation, present specific problems to be solved by the pupil, but the actual problem involving reflective thinking or organized planning on the part of pupils was observed in only 12 cases. The exercise, or the mere going through of a routine process outlined by direction because it appears in a teacher's plan, syllabus, or manual, appeared in 7 cases. Without motive other than to fill the time, cover the ground, or avoid the displeasure of the teacher, the routine is pursued. In laboratory work the exercise is on the dead level of the text rendering task of the classroom. Fortunately, it is less prevalent in vocational teaching than in the science teaching of the academic field. The practicum, for the acquirement of skill,

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in which the pupil recognizes a deficiency and a use, appears twice. No field trip or observation lesson was found, though such appear important in the syllabus outline to which most teachers profess adherence. In April and May it would appear that use of the outside resources of the community should be at its maximum. For observation of marketing, study of dwellings and fixtures, if not of hospitals and factories, as recommended in the syllabus, many of the communities afford excellent opportunities. Even sewing and cooking studies might be profitably enriched by such means. The failure of teachers in respect to outside resources is disappointing.

Group teaching was dominant in 17 cases; individual teaching in 33. In group teaching demonstration by the teacher followed by practice of pupils was resorted to in only 3 cases; demonstration to the individual followed by practice occurred in 3 cases also. That demonstration plays so small a part in teaching is somewhat surprising. The need for a pattern of guidance in the acquirement of skill is patent. Practice with directions given by the teacher was used for the groups in 2 cases, in individual teaching in 13 cases. Practice with suggestive rather than rote guidance appears 3 times in group lessons, 7 times in individual teaching. Direction and suggestion with practice occurred 10 times, and practice without any guidance whatever 9 times.

In the foregoing summary appears a very conspicuous weakness of laboratory teaching in homemaking, namely, the use of directions, in which the responsibility and the mental activity are the teacher's, instead of suggestion wherein responsibility and some of the mental activity, at least, are the pupil's. A forewoman in a shop may get good hats or waists done most effectively, perhaps, by doing the planning herself, telling the work girls exactly what to do, step by step, and even performing the crucial operations herself. Too many teachers of homemaking take exactly that point of view. They get a good product of which they can be proud, that can be worn, exhibited, or eaten. But if the object be to teach girls, then thinking, planning, final choice of this or that move, must be theirs. There may be some waste of material and not so finished a product, but the girl becomes aware of the "why of the how," or relatively adaptive to a range of like situations, rather than tied to a recipe or

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a sheet of directions applicable to exactly the same objective situation. The ability to make use of directions, such as are contained in a cook book, for example, to the achievement of her own ends, is certainly valuable to a woman, but that is a very different case from the one in hand. There will be no teachers in the home to stand by and direct activities step by step. The woman must direct her own activities if not those of children also. She is taught to direct her own activities by being called upon to direct them. With the failure to develop technology and thought content, this habit of giving "step directions" and "making the turns" for pupils should be largely abolished in the interests of good teaching.

In the achieved skill the dominant factors to efficiency are speed and accuracy. In the learning of a skill the pupil must, in the initial stages at least, be consciously aware of the process itself, and must organize the parts of the process into an unified system of procedure. Observers were asked to report on the evident consideration of those factors in laboratory teaching. The report follows:

Attention given to—	Number lessons
Speed	3
Accuracy	22
Process analysis	2
Speed and accuracy	7
Speed and organization	2
Speed, accuracy, and organization	2
Accuracy and process analysis	1
No attention to any of the factors	12

It is evident that the teaching of skills is not very well organized. The dominance of accuracy as a recognized factor is in part due to tradition in schools of a "faculty of accuracy" that can be developed by any sort of exercise, but is equally to be explained by overemphasis on the importance of the material product. It is necessary to be accurate to turn out a good product whether or not you make speed, analyze the process, or consciously organize its parts into appropriate relationship with one another.

Ratings

The tabulated records for each lesson and the descriptive reports were assembled for the respective teachers, read and discussed by

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the surveyor of academic teachers, the surveyor of vocational teaching, and the professor in charge of teacher training in homemaking at the State College of Agriculture. On that basis the schools were rated unanimously as shown below:

As having—	Number schools	Percent
Very high grade teaching	0	0
Superior teaching	3	12
Normally good teaching	16	64
Inferior teaching	3	12
Very low grade teaching	3	12

In so far as the judgment is sound and the observation representative (it is the largest proportion of teaching observed for any type within the survey), it appears that the curve for homemaking teaching skews somewhat to the lower side of the norm for all teaching observed, and very considerably below that demonstrated in agriculture.

Impressions of Teachers

Observers reported upon the dress and appearance, the voice, and manner of teachers.

Appearance and dress	
Pleasing, neatly and appropriately dressed	17
Pleasing, neatly but not appropriately dressed	3
Unattractive, but neatly and appropriately dressed	2
Unattractive and untidy	1
Noticeably youthful	3
Noticeably aging	1
Voice	
Pleasant and audible	12
Harsh and loud	3
Clear and carrying	5
Weak	5
Manner	
Quiet and slow	1
Quick and alert	2
Firm and competent	7
Nervous and timid	4
Unduly intimate	1
Distant	2
Domineering	1
Kindly and sympathetic	9

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Not very much is to be deduced from the report. Most of the deficiencies are handicaps that can be overcome by persistent endeavor on the part of the teacher.

Evident knowledge of the subject shown by teachers:

Remarkable	2
Very good	2
Good	17
Insufficient	6

That two teachers in nine lack sufficient knowledge of the subject they are teaching is not, of course, creditable. The showing is much less favorable than with teachers of agriculture. No basis is given in the survey for comparison with other teachers.

Observers' judgment of teachers' vocational competency, or ability to do the things they are trying to teach.

Very good	3	Good	20	Uncertain	4

Observers' judgment of teachers' professional attitude or spirit:

Good	10	Mediocre	8	Lacking	9

Teachers had, apparently, a strong and good influence upon pupils in 5 cases, a satisfactory influence in 15 cases, and a weak or unfortunate influence in 7.

The attitude of pupils toward the teacher was normal in 21 cases; they admired and loved her to an exceptional degree in 3, and apparently disliked or feared her in 3 cases.

So far as such opinions go to prove anything it is that homemaking teachers are not a selected group in terms of personality. They vary in the human attributes just about as other women teachers do. That we should get women into the teaching of homemaking who are uniformly "strong, mature, and motherly" at a salary of $1200 is hardly to be expected.

Observers were able to converse with the principal in 23 schools and to gain some idea of his attitude toward the vocational course and the teacher of homemaking. The judgment found in fifteen minutes or an hour's talk with a principal cannot be taken as final.

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Actions speak louder than words. The poorest backer may be the loudest in praise and vice versa, but in the main the judgment is probably worth recording.

Apparent attitude of principal:

Toward vocational course		Toward vocational teacher	
Enthusiastic	7	Enthusiastic	9
Favorable	11	Favorable	7
Indifferent	3	Indifferent	3
Unfavorable	2	Unfavorable	4

Other evidence of the intelligent activity of teachers and the calibre of their teaching is to be had from the replies to a questionnaire returned by 46 of the 55 teachers to whom the form was sent.

Teaching of Skills

A list of skills in homemaking was suggested and teachers asked to check those they taught and those they tested. Twenty-one teachers listed additional skills. In order of frequency the first 15 skills are given:

Skill	Taught	Tested
Preparing meals	46	42
Serving meals	45	41
Using sewing machines	44	38
Using commercial patterns	44	38
Repairing clothing	43	37
Canning fruit	40	35
Canning vegetables	39	34
Baking bread	38	31
Using sewing machine attachments	33	26
Removing spots and stains	32	20
Putting up school lunch	31	20
Preparing invalid's tray	28	21
Laundering muslin	26	16
Repair of linen, curtains, etc.	25	18
Laundering silk	22	11

Thirty teachers stated that the same skills were required for all girls, 1 that they were not. Of the 16 who gave reasons for differentiation, the replies classify as follows:

According to differences in capacity of pupils	5
According to differences in acquirements of pupils	4
According to differences in home opportunity for learning	7

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The reasons are sound and intelligently chosen, though with high school pupils and such skills as are listed above the first is probably less significant than the others. One teacher in three is discriminating enough to differentiate in terms of the pupil.

Thirty-four teachers replied to the question, "By what means do you determine the degree of skill that is required in any given case?" Only ten interpret the question correctly. Of them six attempt to arrive at a standard by observation of the proficiency of successful homekeepers, three use their own proficiency as the standard, and one is content to achieve whatever proficiency is possible in the time at her disposal. There is need for study of the proficiency standards in common household skills and formulation of means of test, if teachers are to make the best use of time.

Methods by which proficiency is tested are mentioned with the following frequencies:

Definite practical assignments	9
The home project	3
Rating by product, speed, and accuracy	4
Scoring of the product	7
Written test	2

The elements contained in the first four measures, if combined, should give a proper test. The fifth is absurd, except ability in handwriting or written English is to be measured. Emphasis on the product again is evident.

To the question, "Do you teach all the skills required in homemaking," forty-four teachers replied—15 in the affirmative, 29 in the negative. A majority, then, have given thought to the matter. Their reasons for selecting such skills as they do teach show considerable insight.

I teach such skills as are:

Suited to the needs and abilities of the particular group of girls in the community served by the school	18
Most likely to be of use in later life	2
Not more economically learned outside of school	1
Most representative and typical	1
Within the limitations of teaching environment	10
Appropriate to the study in hand	5
Improved by drill at school	3

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Suggestions of teachers with regard to the selection, testing, and teaching of skills:

Selection	
Select skills most frequently usable in the future	5
Select skills most frequently usable now	2
Select according to community needs	13
Select according to pupils' needs	12
Select the most typical skills	1
Select those in which pupils show lack of proficiency	2
Select according to age and capacity of pupils	1
Select those you can teach most effectively with the time and equipment you have	2
Select those of particular interest to pupils	1
Let the division provide a suggestive list of skills and methods of testing	1
Selection should be entirely in hands of teacher	1
Testing	
Test through practical problems under home conditions	3
Test according to definite standards	2
Test each skill separately	1
Give attention to improvement as well as achievement	2
Make a score card for kitchen technique	1
Teaching	
Provide motive for practice	1
Emphasize drill	3
Teach the more essential skills first	1
Teach under home conditions	3
Teach at most opportune time	1
Make teaching an individual matter	1
Waste no time on minor details	1
Use more and better equipment	1
Use skilful pupils as assistants	1

Most of these suggestions are well worth study. There is no necessary conflict between the last two under selection, and the second in the list is specially worth noting. Under teaching, the last three deserve some criticism. Waste of time on unessentials is certainly undesirable, but let the teacher consider that what appears to the practised adult as a minor detail in a process may, nevertheless, be an essential detail worthy of emphasis to a right organization of the process in learning. For example, the process of measurement in cooking ingredients may serve. A teacher may need more and better equipment than she has, but she must use such as she has for teaching purposes. The skilful pupil is, by the statement, not in need of practice to any great extent. The educational value of repetition is decidedly lessened for her. To use her,

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then, for assisting in the teaching of others is to deny her time for learning what she needs to know, and savors of exploitation. It is not the work of the homemaking department to train teachers of homemaking. If a girl has determined upon such a career, of course, a justification of her use as assistant is to be found.

Provisions for Teaching Skills

The suggestive syllabus which all but eight of the 46 teachers follow with but minor modifications provides for instruction in house furnishing and decoration, home nursing, household management, community health, and sanitation. Now, in all these studies is involved something more than technology and the experience necessary to give that useful meaning. There are skills which call for actual practice. Teachers were asked, "How do you provide for actual skill acquirement?" in the several studies.

Household furnishing and decoration	
Not yet given	14
No provision whatever	4
Practice house	4
Home projects	13
Sharing teachers' house	1
Decorating the school room	5
Decorating and furnishing cardboard house	5
Making drawings, paper cutting, booklet	17
Making plans for fictitious home improvements	5
Visiting shops and studying materials	1
Choosing a site for a home	1
Making articles for ornament	1

There is here, perhaps, some testimony to the ingenuity of teachers, but the poverty of genuine homemaking experience is plain. The problem is a difficult one. A practice house is desirable for other purposes, but does not solve the problem here except for the class enrolled in the subject at the inauguration of the practice house. Neither it nor a teachers' house, nor the less typical schoolroom, can be furnished and decorated every two years. The home project is more hopeful as setting individual problems of room furnishing and decoration for the girls. The decoration of a girl's own room, for example, can often be easily arranged. But the furnishing is another matter for most families. Parent-teachers'

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associations, organizations of women of the community, may be helpful in bringing girls to a share at least in the furnishing and decoration of rooms and houses. The teacher must be alert and resourceful if girls are to learn from genuine participation.

Home nursing	
Not yet given	21
No provision at all	4
Care of children and patients at home	9
"Make believe" practice at school	14
Treatment of minor injuries at school	1
Visit to hospital	1
Talks and demonstrations by school nurse	2

The last two are, of course, useful, but they do not provide actual practice for pupils. The care of children will often be possible at home or through employment, but the home project will not provide regularly for the care of the sick. With a sick-bed and first-aid outfits it is probable that the dramatic rehearsal at school or in the practice house or Red Cross rooms offers the best means to practise in most cases. So much at least should be provided in all schools. Further it is safe to say that the work should come so early in the course that all girls may have a chance.

Household management	
Not yet given	21
No provision at all	2
Rotation in management of practice house	3
Assumption for a period of management at home	14
Keeping the accounts at home	7
Buying supplies at home	2
Rotation in charge of department at school	3
Class projects in planning, preparing, and serving school banquets	1
Laboratory practice (not specified)	2
Drawing and recitation work	1

In household management the practice house is particularly valuable, though undoubtedly a certain number of girls, allowed by parents to take over the management of the home for a week or a month or more at intervals, may gain more valuable experience at home. But in many cases the only way to secure such a condition is to persuade "mother" to go on a visit and get a rest. The last three provisions are poor makeshifts, the final being unworthy of the name of "practice" in household management.

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Community health and sanitation

Not yet given	21
No provision at all	14
Local field studies	5
Through health club	1
Taking care of school property	1
Home project	2
Care of foods and utensils in cookery	3

The notable fact here is that so important a matter finds any place at all in only one school in four. It is probably true that such practical skills as are needful can be taught, and should be taught, in connection with the activities of cooking, sewing, management, etc. With so small a use of outside resources, of course, it is doubtful that the technology can be effectively taught, but the reference here is to skills.

Departures from Syllabus

The reasons given for change in the course from the syllabus plan fall under three heads:

Owing to community conditions 11

e. g., omitted trips to stores, markets, restaurants, bakeries, factories, etc., because none were accessible. Cut out fancy foods and fancy dresses as inappropriate.

Owing to school conditions 12

e. g., lack of equipment, too great expense for materials, lack of time because of other duties, such as running the school cafeteria, etc.

Owing to differences in pupils 11

e. g., girls already know some of the syllabus content, girls lack sufficient preliminary training to undertake some of the work, etc.

Those changes refer to emendations or amendments to the teaching content. Five teachers report a change in the sequence of subjects.

Teaching of Technology

In study of technology one teacher uses text only, 17 use reference only, the rest use both text and reference. Slavish dependence on the text is thus not evident among homemaking teachers.

As in the case of agricultural teachers, there were submitted four topics in technology. These were budget making, house planning, invalid diet, sewage disposal. Homemaking teachers (40) submitted examples of the details studied under those heads. The range of subheadings ran from 2 to 22, with a median at 7. In the

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same way as previously explained a judgment was made of teaching attitude revealed, *i. e.*, practical, academic, scientific. The summary follows:

	Treatment aspect		
	Practical	Academic	Scientific
Budget making	8	8	0
House planning	4	7	1
Invalid diet	2	5	3
Sewage disposal	0	1	1
	14	21	5

No great weight is to be given a judgment of the sort. So far as it gives indication of the kind of teaching being done it shows a bit less of the academic treatment than with agricultural teachers, perhaps, because the studies are less standardized. But it is to be remembered that the agricultural teachers give superior evidence of a tendency to concrete reference to pupils' experience.

One hundred and forty-two examples of assignment were offered. Classified, they appear as follows:

Text readings	54
Readings in single sources other than text	81
Readings in two sources other than text	5
Readings in three sources other than text	1
Readings in four sources other than text	1

The tendency to the use of outside sources is evident if the range appears small. The tendency may be expected to vary with the subject, but probably not greatly if the topics classified below be considered.

Classification of 135 topics cited for assignment by 46 teachers.

	Number topics	Percent
Foods and cookery	71	52.59
Textiles and clothing	27	20.00
Household management	19	14.07
House planning and decoration	12	8.89
Home nursing and child care	6	4.44

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Two further indications are found in the listing of unsuggested topics: (1) Again, that the lower class studies predominate in teaching; (2) that much more is being made of the technology of cookery than of that of clothing. At present the technology of cookery is certainly richer than that in clothing, on the scientific side particularly, and it may be that for vocational purposes it is more significant. There is no indication in the survey that it is overdone. But it does appear that, on the side of clothing, there is a good deal of neglect of technology.

As indicative of a possibly greater use of outside resources than was found in the observation of teaching, a summary of the replies of teachers to the question, "Do you make assignments to sources other than reading matter?" is given below:

Number giving such assignments	34
Number not giving such assignments	12
Sources used	
Stores and markets	30
Textile factories	6
Unspecified observation trips	7
Mothers and experienced women	4
Home bureau workers	3
Chautauqua	1
Project work	3
Contractors and builders	1
Dwelling houses	3
Hospitals	1
Dairies	4
Charts, pictures	5

Testing for Technology

"How do you determine that a pupil knows what you have tried to teach her of technology?" Replies by 44 teachers in order of frequencies:

Examinations and quizzes	24
Written reviews	20
Oral work and recitations	14
Practical problems of application	14
Observation of project work	11
Conduct of contests	1

The comment made upon the same topic under agricultural teaching is applicable here and need not be repeated. That nearly one-

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third of the cases indicate recognition of test in the sort of association in which the technical knowledge is to be used is encouraging.

Experience in Buying

Experience in buying of some sort is reported for pupils by 41 teachers, 8 of whom state that it is very little. In order of frequency the types of experience follow:

Buying supplies for the class	17
Buying goods for sewing	14
Buying foods for serving meals	8
Buying lunch-room supplies	8
Buying supplies for home projects	7

Apparently the home project is much less a dependence here than in agriculture. No question was put with regard to selling, since ordinarily that is not a type of ability required in homemaking, but managing and directing others may frequently be so.

Directing Others

Thirty-three teachers report some experience for their pupils in managing, thirteen report none.

As hostess	4
In charge of laboratory group	6
Directing preparation of school lunch	15
In charge of practice house	2
Directing committee work	3
Assisting teacher	2

In the absence of any large provision for home management it would seem that such duties as these should be made frequent and responsible.

Employment

Practical experience may also be obtained through employment in homemaking work. Twenty-six teachers report employment by pupils—not all of it, however, in homemaking. That in homemaking or related work reported is as follows:

Hired housekeeper	7
Hotel employee	2
Dressmaker	2
Nurse (children)	1
Employee in cannery	3

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Of 882 girls replying to a questionnaire from 50 schools, 505, or 57.25 percent, reported work as employees. Of them 257, or approximately 50 percent, had been employed in homemaking or related occupations as follows:

Housework	131
Care of children	48
Waitress	44
Sewing	26
Laundry work	6
Canning	2

Of work in homemaking without pay and apart from instruction 852, or 96.6 percent, made report.

The types of work in order of frequency follow:

General housework	393
House cleaning	326
Washing dishes	290
Cooking	216
Sewing	183
Serving meals	166
Baking	92
Making beds	90
Laundry work	72
Care of own room	69
Care of children	10
Care of own wardrobe	5
Managing the home	5

Although the categories are not very specific, they certainly reveal a rich fund of experience upon which to draw in the teaching of technology, and make the uniform and indiscriminate teaching of skills clearly a misfit. It is astonishing that so few report the care of children, but the absence of managerial and executive experience is to be expected. Without details, such a report seems to give backing to the already implied belief that the emphasis upon the practical as against the technological in sewing and cooking is exactly inverse to the real needs of the situation, and that the least emphasis is given to those subjects in homemaking which are most appropriate to the school as complementary to the home. The managerial, executive, economic, social, sanitary, scientific, esthetic and maternal aspects need an emphasis which they do not now receive. For country girls the routine of housework is acquired

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largely at home. All that the school can profitably do is to connect the conduct of such routine with intelligent understanding and appreciation. Observed bad and wasteful habits may, in some measure, be redirected by school practice and careful supervision. A rearrangement and reselection of the content and method of the course appear desirable. What the mother cannot or does not teach her daughter as a by-product of participation in the home economy should be determined by careful vocational research in homemaking. Then the course in homemaking at school can be made more profitable to the girl and to the community.

Coöperation

To return to the questionnaire. How far experience in vocational coöperation is necessary to success in homemaking the surveyor is unable to state. Certainly it does not have quite the significance that it has in the vocations of farming. But teachers were asked to report upon the experience of girls in working together. Twenty-four reported some experience, 22 none. The forms reported were: Preparing and serving meals to large groups 17, group work in class 6, coöperative home projects 3, preparing and putting on exhibit at State fair 2. Certainly for community work among women in which homemaking knowledge and skill are involved, such, even the last, may be regarded as educational preparation. In the management of a household they would function to a less degree.

Exemptions

The physical and moral risks in teaching homemaking are small, so that such doubtful cases as occur in agriculture must be rare. Yet girls are even more likely, according to the statements of teachers, to be exempted than are boys in the agricultural course. Thirty-two of 46 teachers state that they have exempted or would exempt girls from certain work for various reasons.

Reasons for exemption	
Inequality of home opportunity	15
Girls sufficiently trained already in certain respects	5
Some girls more capable than others	5
Physical inability	2

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Examples of exemptions granted	
Girls boarding away from home excused from projects	5
Girls earning their own living excused from projects	5
Extra work done at school set off against project	3
Girl not enrolled for credit excused from project	1
Girl excused from project because of parents' objection	2
Girl working in model kitchen excused from rearranging it	1
Girl who had two years' experience in canning allowed to substitute extra baking	1
Girls in ill health excused from heavier work	2
Skilled darners not required to darn	3
Girls specially interested in cooking allowed to do extra cooking	3

The exemptions reported for project work, which are most frequent, appear to be unsound if the experience is needed. Nothing is said of alternative or substitute practice, which might serve the purpose of the project, in part at least, and meet the State requirements. There is no good reason why girls specially interested should not do extra work if it be not done at the expense of learning in some other field.

Those sufficiently qualified to be exempted from certain requirements of the course should use their time to gain other knowledge and skill. Nothing is said of substitutions by teachers. It appears that the judgment of homemaking teachers is not as well founded as it should be. The reasons given for exemption are intelligently chosen, but the examples are not satisfying.

Reasons for non-exemption	
All girls need certain fundamentals of home work	6
There is always room for improvement	4
All must meet the same requirements if State aid is to be granted to the school	2
Examples of non-exemption	
Every girl made to bake bread a certain number of times, no matter what her skill	1
Every girl made to practise the washing of dishes, because every one can improve	1
Lack of home opportunity not accepted as an excuse, because extra work can be provided at school	1

There is a poverty of examples. But with the exception of the last example, neither examples nor reasons will bear examination. They reveal foggy thinking or misunderstanding. Even accepting as true the first statement as enunciating a sound principle, it is valueless as an argument for uniform requirements.

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Study of Community

A knowledge of community requirements is, perhaps, somewhat less exigent in the case of homemaking than in that of agriculture. But it is a matter of prime importance, nevertheless, and particularly is knowledge of teaching resources requisite to good teaching. Since 40 of the 58 homemaking teachers in the rural high schools are in their first year of service in the particular community, and 34 of them have never lived in the community previously, they would appear to be particularly deficient in knowledge highly useful to them. It appears also, as has been noted, that only a small fraction have a functioning advisory board. But 24, or more than half of those reporting, have undertaken some study of the homes and the community. Only 12 report the method of study, and in their reports is little indication of system. With a heavy schedule and new duties in many cases excuse, of course, is to be found, but the deficiency is none the less real. Some provision for survey, such as has been made by the division for teachers of agriculture, should be undertaken. Three teachers have made observation incidental to their project supervision only, two have visited farm homes, two report that it is a small town and they are well acquainted. One each reports the following activities as giving knowledge of community needs:

Work in the home bureau.
Visits to people not interested in sending their daughters to college.
Visits to well-to-do families.
Social calls on neighbors.

And one reports merely that she has found evidence that houses are badly planned, presumably from indoor visits.

Yet 32 report that their knowledge of the community has led to greater or less modification of the content and method of their teaching.

Suggestions for Modification

Twenty-two teachers give opinions as to need for modification in the present organization and difficulties found in working under it.

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NEEDS FOR CHANGE IN ORGANIZATION OF THE COURSE

Less home project work	3
Simpler clothing requirements	2
More room for work	3
Better equipment	2
A school lunch room	2
More useful kinds of sewing	1
Regents credits on one-half year basis	1
An advisory board of women	1
A liberal and sympathetic Board of Education	1

Obviously, only two of the suggestions would require any change in organization, and it is doubtful that either is consonant with a sound vocational program.

Difficulties

There are no orphans to sew for (*vide* syllabus)	1
Factories are not accessible (*vide* syllabus)	2
Coöperation with local hospital difficult to secure	1
Pupils live too far away for supervision	4

The last suggests the need of provision for transportation and employment for a period that would allow of consistent follow-up. The plan of employment for a year, as in the case of agricultural teachers, would undoubtedly go far to give close touch with the community and make project teaching effective. The teachers' opinion was sought through the question, "Would your teaching opportunities be markedly improved by employment for summer supervision of projects?" Twenty-five say yes, 9 are dubious, 10 say no, and 2 do not answer.

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CHAPTER XIII

TEACHERS OF HOMEMAKING

ONLY three of the schools in places of under 4,500 population employed two teachers of homemaking. In the larger places two and even three teachers are frequently employed. There were 97 teachers employed in the schools for 1920–21. With regard to those teachers, the division of vocational and extension education has furnished the following "approximate data."

SCHOOLING

Number completing four-year course in Home Economics	37
Number completing two years or more but not four years	54
No record of training	6
Graduates	
New York State College of Agriculture	15
Syracuse University	1
Albany State Teachers College	17
School of Practical Arts, Columbia University	4
Simmons College	1
Elmira College	2
Pratt Institute, N. Y. C.	2
Rochester Mechanics Institute	13
Stout Institute	1
State School at Canton (St. Lawrence University)	7
State School at Alfred (Alfred University)	4
Skidmore School of Arts	4
Drexel Institute	2
Buffalo Normal School	4
Cortland Normal School	1
State normal schools in other States	2
Having some training beyond high school	10
No training beyond high school	1

Of teachers of record, then, approximately 44 percent are college graduates. The records of 50 teachers in the smaller schools show that 60 percent are college graduates, and that of the other 40 percent, none has less than two years of training above the high school. Though the teachers of homemaking in rural schools stand relatively high in that respect as compared with urban teachers of homemaking, perhaps because they are nearly all of them first teachers in the department, yet they are slightly below the norm for all high school teachers in the rural districts—62.5 percent—and very much below the teachers of agriculture.

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Teaching Experience

Records of 42 teachers in the rural communities, compiled from supervisors' visiting memoranda, show that in teaching experience the homemaking teachers are again below the norm, the median year of experience being the second. Thirteen are in the first year of teaching, 14 in second year, 6 in third year, 3 in fourth year, 4 in fifth year, 1 in eighth year, and 1 in the fourteenth year.

Professional Studies

In regard to professional preparation for the job of teaching 46 teachers in the rural districts made reply as follows:

Number reporting preparation in—	Number	Percent
Educational psychology	41	89.13
Principles of teaching	40	86.95
Teaching of homemaking	38	82.61
Practice teaching	9	19.56

Practically 9 out of 10 of those reporting have some professional training, 8 out of 10 have a good basic training on the professional side.

Technical Studies

On the technical side the same teachers were asked to indicate special preparation in various subjects related to the technology of the course indicated in the syllabus.

Preparation in Technical Subjects

Subject	College study	Special experience
Homemaking	28	15
Millinery	24	7
Dressmaking	34	11
Institutional management	9	7
Catering	3	3
Dietetics	21	4
Care of children	11	8
Laundering	18	7
Other (including)		
Housekeeping	2	1
Cookery	3	1
First aid	2	0
Household physics	1	0
Home decoration	2	0
Embroidery	0	1
Settlement work	1	0

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In terms of percentages without duplication of forms of training the following are the results of inquiry into technical training of a special nature.

Homemaking	88.40 percent
Millinery	58.14 percent
Dressmaking	83.72 percent
Institutional management	37.28 percent
Catering	13.95 percent
Dietetics	53.50 percent
Care of children	41.86 percent
Laundering	53.50 percent

An indication of the degree of specialization inferred in the question by teachers may be given by the frequency of various ranges of subject specialization reported.

Special preparation	Number Teachers
In one subject	5
In two subjects	4
In three subjects	6
In four subjects	5
In five subjects	8
In six subjects	8
In seven subjects	2
In eight subjects	4
In nine subjects	1

Deficiencies in technical training appear not to be largely significant for the secondary school course, except in the cases of care of children and laundering, both of which enter into the present plan. Since the subject standardization is less as yet in training courses in homemaking than in agriculture, and since the surveyor is much less familiar with the content than with that of agricultural subjects, no further criticism is offered. Evidently "homemaking" as a subject in college is less inclusive than "homemaking" as a course in the secondary school. Since 9 of 10 teachers profess special qualifications in a subject inclusive of most of the work of the first two years of the vocational course, technical deficiencies affecting a large number of pupils do not loom large, as was the case with shop work in agriculture.

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Studies in Science

In the sciences preparation is much like that of agricultural teachers, except that in sociology and physiology there is a better showing, in economics a worse.

Subject	College study	Secondary school
Economics	31	5
Sociology	22	2
Chemistry	43	14
Physics	34	31
Botany	21	27
Zoölogy	21	18
Physiology	38	31

It thus appears that though teachers of homemaking rate in length and breadth of preparatory training as indicated by college graduation somewhat below the norm of country high school teachers, yet in definitely appropriate preparation for the job they have to do they compare favorably with the agricultural teachers. The number and proportion represented in the questionnaire is less than with agricultural teachers, and the evidence of college preparation somewhat higher than is indicated by the record of the whole group, but the generalization is reasonably well founded.

Reported Deficiencies

So far as the deficiencies and merits of their training go, the reports of teachers themselves are of interest. Twenty-two teachers find no deficiency worth noting in their qualifications, 24 report deficiencies in technical and professional training, with the following frequencies:

Technical Deficiencies

Lack of practical experience	10
Lack of skill in doing	3
Lack of skill in sewing	3
Lack of skill in millinery	1
Lack of knowledge of dietetics	1
Lack of knowlege of home nursing	1
Lack of knowledge of catering	2

It is noteworthy that lack of technical skill is reported four times as frequently as lack of technical knowledge. The charge that college courses too largely neglect the practical skills receives some support here. On the other hand, the emphasis is at present much

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too heavily the other way in the case of the high school course. Teachers are called upon to use the technical skill that they have, but are making relatively small use of their technical knowledge. There is no indication, however, that they possess more technical knowledge than is necessary to effective teaching.

PROFESSIONAL DEFICIENCIES

Lack of knowledge of the requirements of laboratory and project teaching of the vocational type	7
Insufficient understanding of the theory of teaching	1
Lack of training in the economical use of time	1
Lack of apprentice teaching experience	1

It will be noted, as with agricultural teachers, that the technical deficiencies are more frequently felt by teachers than the professional, and that the chief reported failure of professional preparation is definite connection with the type of teaching which is to be done. To teach general principles apart from any appropriate and usable associations is to leave a deficiency in teacher preparation.

USEFULNESS OF TECHNICAL STUDIES

In respect to the helpfulness of special technical preparation in the work of high school teaching, teachers were unanimous in the opinion that it was of value. Various ways in which the teachers' special proficiency in technical fields has been helpful are reported:

Directly adaptable to the work of teaching	12
Enables teacher to meet conditions and needs	13
Helps in organization of teaching content	6
Enables teacher to make teaching practical	3
Gives teacher resource and intelligence	3

Eighteen teachers have no suggestions to make with reference to the improvement of technical training; the others offer the following:

Should be more definite and practical	8
Should provide actual vocational experience	9
Should fit directly for vocational teaching	6
Should include conduct of projects	2
Should include specific instruction in lunch-room management and costume design	3
Should include travel and visits to vocations and schools	1

All the suggestions appear sensible, though the last might offer considerable administrative difficulties.

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Usefulness of Professional Studies

With respect to the value of professional preparation the report of 46 teachers is as follows:

Helpful in Present Teaching Work

	No.	Percent of those who report such preparation
Educational psychology	28	68.30
Principles of teaching	29	72.50
Teaching of homemaking	34	89.47
Practice teaching	9	100.00

It is interesting to note again that the more definitely the professional instruction bears upon the particular job to be done, the more useful it is in the opinion of the teacher.

Ways in which particular studies are of help are suggested rather vaguely by a few teachers.

(*a*) Educational psychology	
Helps to understand pupils	10
(*b*) Principles of teaching	
Gives understanding of the work	2
Helps in planning work	3
Helps in conduct of lessons	2
(*c*) Teaching of homemaking	
Gives directly usable procedures	3
(*d*) Practice teaching	
Enables application of principles	3
Gives knowledge of the job	7
(*a*) and (*b*) Aid in control of pupils	1
(*a*), (*b*) and (*c*) Help in classroom management	2
Unspecified:	
Enables teachers to meet needs of pupils	4

Usefulness of Sciences

In reply to a question concerning the utility of science preparation in the laying out of the work, teachers report the studies useful in the following order of frequency:

Chemistry	30	Sociology	3
Physiology	24	Botany	2
Physics	19	Zoölogy	2
Economics	9		

The low utility of botany and zoölogy is understandable. The low rating of economics and sociology is probably because the prev-

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alent subjects in the course, cookery and sewing, particularly the first are as yet almost wholly developed rather as applied sciences than as economic vocations or social activities. Much more attention, for example, is given to elements and calories than to costs in cookery, much more to structure and texture in clothing than to the social implications.

In reply to the question, "Of what use is your knowledge of them (the foregoing sciences) to your pupils?" the replies are as follows:

Gives them insight and understanding of practical problems	19
Makes explanations meaningful	10
Enlarges their interests	5
Correlates homemaking with other studies	4
Gives confidence in resourcefulness of teacher	9
Helps them to perform tests and experiments	3

The uses reported are much like those found for science by the teachers of agriculture. The resourcefulness of the teacher in the matter of scientific implications is, of course, quite as important as in agriculture.

Professional Improvement

Only 16 of the 46 teachers, 34.8 percent, are engaged in or contemplate any immediate work of professional improvement, and certain of the undertakings hardly deserve a place in such a category.

Planning to attend summer session	6
Enrolled as graduate student	1
Reading professional books	2
Studying lesson plans and courses	1
Doing regular sewing and cooking	2
Working in dressmaking shop	4
Employed in Home Bureau work	1
Studying home nursing	1
Studying French	1
Studying elocution	1

Value of Supervision

Thirty-five teachers report the visits of State supervisory agents of value to them, 6 do not consider them valuable, and 5 do not commit themselves. The infrequency of such visits has already been noted, so that the reports are not surprising.

Twenty-eight teachers make no reply to the question concerning the value of visits of teacher training agents; the others are equally

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divided in judgment of the utility or non-utility of such visits. Few teachers have much experience in the matter.

With regard to State and regional conferences of homemaking teachers, 38 teachers find them of value, 3 do not; 5 presumably new teachers who have never attended make no report. Only one teacher fails to find help in the bulletins and publications of the State department in regard to homemaking.

Suggestions of Teachers

Only 18 teachers have any suggestion to make with reference to the improvement of supervision:

Visits should be more frequent	15
Criticism should be more definite	1
The principal should help in supervision	1
There is too much disturbing supervision	1

Suggestions with regard to conferences, readings, and publications are made by 25 teachers:

We need more of all of them	12
We particularly need more conferences	10
Teachers should be paid for attendance	1
Teachers should be furnished with publication lists	1
Boards should be furnished with more reference material	2

The evidence is fairly strong that teachers would appreciate further efforts for professional improvement by the Division or Vocational and Extension Education.

Teachers offer the following suggestions regarding strengthening measures to better preparation and professional improvement in service:

Make college courses more practical	5
Teachers should be enabled to attend summer school	5
More courses in methods should be offered	1
State should provide reading courses	1

Other means of strengthening teaching are suggested:

Increased opportunity to visit schools and attend meetings	6
Clear instruction with regard to projects	2
Better provision for supervision of projects	2
"Round Robin" correspondence between teachers	1
More use of advisory committee	1

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With respect to records and reports, 14 teachers offer suggestions:

Eliminate project reports	4
Simplify project reports	10
Make records more uniform	4
Require that a file of records be left at school	1
Use card index for monthly reports	1
Supply tests for skills	1

Evidently the present system of records is regarded as unnecessarily cumbersome. The last suggestion is worthy of consideration by the division also.

Value of Advisory Board

The advisory board organization has been very slow, only 14 teachers of 46, or less than one in three, reporting the appointment of a board. In three cases of those the board has not yet had a meeting with the teacher, and in one the board of education serves as advisory board. The other 10 teachers report the board as useful in the following ways:

By increasing general interest in the work	5
By helpful suggestions to the teacher	2
By assistance on selecting equipment	2
By assistance in conducting exhibits	2

Teaching Load

The teaching load of homemaking teachers is approximately that of the average high school teacher in the rural districts, the median being six periods of teaching daily. Nineteen teachers carry two double periods daily, 23 three double periods, 4 four double periods.

Forty-two report that they do not need more time for homemaking, 4 that they do. Forty-one do not need less time, 5 need a lighter schedule. Thirty-seven are satisfied with the present distribution of hours, 9 wish a different distribution. Suggestions for improvement are offered by 19:

Alternate subjects by successive days	4
Use two half-days for laboratory, one double period per week for classroom instruction	3
Make no load more than 3 double periods	3
Have cooking a forenoon class	3
Allow time for project supervision and lunchroom work	3
Make the two periods of a class consecutive	1

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It is a little astonishing to the surveyor that the last suggestion is not more frequent. In at least a half-dozen observed instances the principal has arranged the schedule so that girls may fill in any periods vacant of academic requirements with homemaking. As a result, classes are badly broken up, and two or three different kinds of work with different groups may be going on at the same time. It is such an arrangement that makes it necessary for the teacher to carry eight periods a day. As an example, one teacher visited taught eight periods a day and conducted the lunch-room. At no time during the day could all the numbers of the same class group be together for two consecutive periods. In routine project sewing the situation is tolerable, if wasteful. For any systematic development of technology it is intolerable. The state requirement should be more rigidly enforced.

DISTRIBUTION OF SALARIES AMONG 66 TEACHERS OF HOMEMAKING IN STATE-AIDED SCHOOLS FOR 1920–21

Amount	All	Number of teachers represented				
		Rural	Urban	Two-third salary	One-half salary	Intermediate
$800	1	1	0	0	1	0
850	1	1	0	0	1	0
900	2	2	0	0	2	1
1000	14	14	0	1	13	1
1072.50	1	1	0	0	1	0
1100	8	8	0	2	6	0
1150	1	0	1	0	1	0
1170	1	0	1	0	1	0
1200	18	17	1	6	12	1
1225	1	1	0	0	1	0
1250	1	0	1	0	1	0
1300	4	2	2	0	4	0
1310	1	0	1	0	1	0
1350	1	1	0	0	1	0
1400	4	2	2	3	1	0
1500	4	4	0	2	2	0
1650	1	1	0	0	1	0
1800	2	2	0	0	2	0
	66	57	9	14	52	3

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	Median	Upper quartile	Lower quartile
All schools	1200	1250–1800	800–1000
Rural schools	1200	1200–1800	800–1000
Urban schools	1300	.....	.....
Two-thirds salary	1200	1400–1500	1000–1200
One-half salary	1200	1250–1860	800–1000
Intermediate schools	1000	.....	.....

The foregoing table indicates that teachers of homemaking receive for the academic year of employment approximately the same salaries as other women teachers in the rural high schools to the paying of whose salaries the State lends no special aid. Although the few urban teachers included receive a higher median salary than those in the smaller schools, there is no evidence that the salary advantage is great enough to compensate for probable differences in living expense. Under State aid the larger places will not draw from the smaller by salary appeal at present.

Places employing sole teachers of homemaking are, in the median, doing no better by their teachers than schools of the double organization. Only three of the four intermediate school teachers are represented. It is noteworthy that their salaries, like those of the principals of intermediate schools, tend to the lower end of the scale. Absence of Federal aid is not, however, a factor in the case, since no teachers of homemaking receive payment from Federal allotments.

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CHAPTER XIV

ENROLMENT AND PUPILS IN HOMEMAKING

ENROLMENT figures were secured for 52 of the 55 schools in the rural districts and for 9 urban schools. Half the schools had an enrolment of 19 or under, half of 19 or over, as against a median of 16 in the case of agricultural schools. Since a majority of pupils are girls in the rural high school, and since homemaking is less selective of the farm girls than agriculture of the farm boys, there is probably little difference in the attracting power of the two types of work.

The distribution of enrolment by schools is shown below:

1920–21

Number pupils enrolled	Rural schools	Urban schools	All schools	Number pupils enrolled	Rural schools	Urban schools	All schools
3	1	0	1	22	2	0	2
7	1	0	1	23	1	1	2
8	1	0	1	25	3	1	4
9	1	0	1	26	1	0	1
10	2	0	2	27	1	0	1
11	5	0	5	28	1	0	1
12	2	0	2	31	1	0	1
13	1	1	2	32	2	0	2
14	2	1	3	33	1	0	1
15	4	0	4	34	2	1	3
16	1	0	1	35	1	0	1
17	4	0	4	37	0	1	1
18	3	0	3	39	1	0	1
19	4	0	4	41	0	1	1
20	3	0	3	47	0	1	1
21	1	1	2	..	..	..	..

Median all schools..... 19
Median rural schools..... 19
Median urban schools..... 25

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It will be noted that in the upper quartile enrolment runs much higher than in agriculture. Three of the schools in that group employ two teachers.

Size of Classes

On account of the apparent prevalence of free election in homemaking the only reliable index to size of classes is in the report of attendance upon lessons observed.

Number pupils in attendance	Total	Sewing	Dressmaking	Cooking	Other lessons
3	6	2	2	1	1
4	6	4	0	1	1
5	6	2	1	1	2
6	5	0	1	4	0
7	4	1	1	2	0
8	5	1	3	0	1
9	2	1	0	1	0
10	5	3	0	2	0
11	3	0	0	2	1
12	2	0	1	1	0
14	5	2	2	1	0
16	2	0	0	2	0
17	1	1	0	0	0
21	1	0	1	0	0

The median for sewing is 7; for dressmaking 8; for cookery 8; for other lessons 5; for all lessons reported 7. Actual size of classes will run a little higher, since only attendance is recorded. Probably 8 pupils is a representative subject class in homemaking.

Occupation of Parents

The occupation of the parent is probably of less significance in the case of girls in homemaking than in that of boys in agriculture or pupils in any other sort of vocational work. But it may serve to indicate the probable home and economic status of the group taught. Of 880 girls reporting from 50 schools the occupation of parents is shown in the following classification:

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Occupation	No.	Percent
Agricultural	457	51.93
Mechanic trades	100	11.36
Commercial	82	9.32
Transportation	60	6.82
Manufactures	46	5.22
Professional	38	4.32
Other	97	11.03

Upbringing

Place of upbringing and residence is reported by 873 as follows:

Upbringing	No.	Percent
Country	435	49.82
Village	302	34.59
City	45	5.15
Country and village	45	5.15
Village and city	26	2.97
Country and city	11	1.26
Country, village and city	9	1.03
Residence (882 replies)		
On a farm	424	48.07
Not on a farm	458	51.93

There is no reason to think that homemaking is selective according to country and village upbringing, nor according to the type of home or parents' occupation, more than a non-vocational and unrequired study in the rural high school. Unfortunately there are no data available for comparison in that respect. The differences between homemaking and agriculture are, however, considerable as has been noted. There are certainly fewer differences in homemaking experience and home surroundings than would be found in the high school population of large cities. The indications point to a vast predominance of the middle group economy in family life, living on a modest income and in a single homesteading. Even the most prosperous mercantile and professional men in the smaller villages do not depart far from the American standard in that respect. The facts that 97 girls in 100 have shared in the duties of the household economy, and that 57 in 100 have worked for hire point to the same conclusion.

Other than household employment for which figures have already been given, girls in homemaking report employment as follows:

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Harvesting crops	173	Selling agents	10
Other farm work	28	Telephone exchange	16
Raising poultry or animals	13	Music	9
Factory work	60	Track walking	2
Office work	28	Garage	1
Clerking	79	Teaching school	1
		Companion	1

The range of periods of employment for pay is from one-half day in two cases to six years in four cases, with a median of approximately four months, as nearly as the reports can be interpreted.

Choice of Vocation

On the basis of such experience in vocations and their community and school experience girls declare choice of vocations as follows:

Prospective occupation	No.	Percent
Teaching	269	30.41
Business or office work	184	20.86
Nursing	124	14.06
Housekeeping	36	4.08
Millinery and dressmaking	19	2.15
Music	7	.79
Miscellaneous	68	7.71
Undecided	175	19.94

A girl who is not engaged to be married or who does not expect to take her mother's place in the home is, of course, unlikely to report homemaking as her chosen vocation. There is no doubt, nevertheless, that the great majority of girls will within a few years find that the major occupation in life, so that the value of the homemaking preparation is not to be measured against the indicated choice. Yet it is worth noting that at least one girl in five has indicated choice of a vocation for which homemaking offers more nearly a preparation than any other course in the high school. Even for girls choosing office work the fact that in many schools the only specific training in accounting is in the homemaking course may count for something.

Intention to go to College

Intention to go to college is reported by 339 girls in homemaking, or 38.22 percent. Of them 154 or 45.43 percent are farmer's daughters. Thus, the farmer's daughter appears only slightly less likely

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to plan on college than the villager's daughter, and considerably more likely to do so than her brother. By classes 48 percent of seniors plan to go to college, 39.38 percent of juniors, 39.23 percent of sophomores, 37.86 percent of freshmen. It is not to be inferred, however, that the vocational diploma will open the way for the majority, because of the prevalence of election already pointed out. The courses chosen are as follows:

Course	Percent	Course	Percent
Domestic science	33.63	Music	3.54
Business	22.42	Fine arts	2.36
Normal training	12.09	Physical education	2.07
Liberal arts	6.49	Other	3.25
Nurse training	3.83	Undecided	12.39

The same questions were asked of girls in homemaking as of boys in agriculture in regard to intention to stick through the course, and reasons for leaving it. But since so many girls took the question to refer to the high school course to which their present work in homemaking was but an accessory, the data are valueless. Here is one more indication that cooking, sewing, etc., are looked upon as additional studies and not as a developmental course.

Reasons for Choosing Homemaking

With reference to reasons for taking the homemaking work replies are somewhat more satisfactory. In order of frequency the reasons given are as follows, many girls giving several reasons:

To make clothing (particularly their own dresses)	351
To learn to cook (or because of a liking for cookery)	283
Because the work is interesting	239
To earn Regents credits	108
Because the work is practical	98
Because of the future usefulness of the knowledge	78
To learn how to "keep house"	66
Because it will help in a chosen vocation	54
To help mother better at home	49
Because of interest in special phases	36
To add to general fund of knowledge	28
Prefer it to language study	26
Nothing else to take (intermediate schools)	21
To learn to be economical	14
Because mother desired it	6
To earn money	1

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CHAPTER XV

EQUIPMENT FOR HOMEMAKING

NO DETAILED record of equipment is as yet kept in the office of the Division of Vocational and Extension Education. Specialists in their visiting of schools inspect equipment with reference to its adequacy and appropriateness to the particular needs of the school, and give advice and recommendation concerning it. But in the absence of more frequent intimate supervision it appears that a wide range of differences in amount and kind of equipment for work that is substantially similar is tolerated. The advice given is excellent, particularly with reference to avoidance of the over-elaborate and sometimes toy-like individual equipment furnished by laboratory supply houses, and the advocacy of typical utensils of the sort used in homes. But there is at present no very close check upon the efficiency of such advice in securing results.

In course of observation of teaching in 25 schools visitors made brief inspection of equipment and questioned teachers concerning particular needs. In summary such equipment as the school possessed was in the main of good vocational type, *i. e.*, of the sort used in homes, in all schools. It was reported sufficient for teaching purposes, in the judgment of the observer, in 13 schools, insufficient in 12. The most serious lacks reported by teachers were:

In cooking utensils	10	In supply of running water	3
In table service	7	In having no sink	1
In storage room	8	In having no hot water	1
In wardrobe supply	4	In having no fuel supply	1
In sewing equipment	4		

Schools having:		Rooms	
One room only	15	Laboratory room	17
Sewing room and cooking room	8	Separate sewing room	9
Sewing room, dining room, and kitchen	2	Separate kitchen unit	7
Separate recitation room	1	Separate dining room	2
		Separate laundry	2
		Practice house	1

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Location of Rooms

All rooms in basement	3	All rooms on other floors	9
Laboratory in basement	1	Classroom on other floors	1
Kitchen in basement	2	Sewing room on other floors	2
All rooms in attic	2	All rooms in separate building	7

Buildings

Old buildings....12 New buildings.....6 Other.....7

Condition of Rooms

Very neat and orderly	20	Moderately neat and orderly	5

Arrangement of Rooms

Judged by observer to be good 22, poor 3

Special Deficiencies in Rooms

Poor ceilings	3	Poor furnishings	1
Bad walls	2	Low desks	1
Bad floors	3	Dangerous stairs	1
Bad finish	2	Damp	1
Noisy	2	Too small	1
Not chairs enough	1		

Special Merits in Rooms

Large and light	3	Excellent furniture	1
Newly furnished	3	Prettily decorated	1

Lighting

Well lighted..7 Acceptably lighted..12 Badly lighted..6

Ventilation

Status		Method	
Good	5	Fan	5
Acceptable	16	Window	17
Bad	4	Floor vents	3

Heating

Results		Kinds	
Good	7	Steam	9
Acceptable	12	Hot air	2
Too little	5	Stove	3
Too much	1	Not reported	11

Sinks

One sink	17
Two sinks	7
No sinks	1

Water

Running water	21
No running water	4
Running hot water	9

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Floors	
Hard wood	17
Soft wood	5
Hardwood and concrete	1
Concrete	1
Hardwood and linoleum	1

Condition	
Rough and poor	3

Cooking Stoves

	No. of schools
Oil stoves only	5
2 oil stoves	1
3 oil stoves	2
5 oil stoves	1
6 oil stoves	1
Coal and wood range only	2
1 range only	2
Gas plates only	1
12 plates	1
Electric plates only	1
Number of electric plates not given	1
Gas plates, oil stoves, and gas range	3
Gas plates and gas range	4
Gas plates and wood and coal range	1
Oil stoves and coal and wood range	7
Oil stoves and gas range	1

	No. of schools
Schools using gas plates in cooking	8
2 plates	1
6 plates	1
8 plates	2
12 plates	2
14 plates	1
16 plates	1
Schools using Bunsen burners in cooking	1
Schools using oil stoves in cooking	16
1 stove	5
2 stoves	1
3 stoves	4
4 stoves	1
5 stoves	2
6 stoves	3
Schools using gas range in cooking	8
1 range	7
3 ranges	1
Schools using coal and wood range in cooking	8
1 range	8

Sewing Machines

Number of machines	
1 machine	6
2 machines	5
3 machines	7
4 machines	7

Machines in good condition	
No machines	1
1 machine	8
2 machines	4
3 machines	7
4 machines	5

All machines owned in good condition, 17; some machines out of order, 8.

In rooms it is evident that conditions are fairly satisfactory, and that teachers take good care of their rooms. With one room only, of course, it is difficult to approximate the actual environment of homemaking as a vocation, but there are advantages with a single teacher in having all work in one commodious room. If a unit arrangement be developed, many of the disadvantages are done away with. But there is little evidence of a tendency to use such

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an arrangement. The surveyor is not prepared to discuss the merits of the various arrangements reported. Homemaking experts are not in agreement with respect to them. There seems to be, however, no standard among teachers. Of deficiencies in rooms, the most conspicuous is a lack of storage space.

In the common types of equipment, *i. e.*, cooking and sewing, there are a wide range of differences and a rather large deficiency. Some doubt is thrown upon the observers' judgment in the matter of appropriateness of other than utensils in the cooking equipment. That four schools of 75 have to carry all water in pails and one has no sink are distinct handicaps. Many farm homes, of course, have no running water, but the more progressive type of home does, and to set a standard by the progressive type seems reasonable. Oil stoves and coal and wood ranges will probably prevail for a long time to come, yet less than one school in three has both, and more than one school in three has neither. Only two schools were supplied with natural gas. The gas plate, the Bunsen burner, and the gas range supplied from a school generator are too common to indicate a very appropriate selection. The convenience of such in a school is not disputed, but their appropriateness to homemaking instruction is seriously doubted. A school supplied with electric plates only is expensively equipped, but decidedly deficient. Coal and wood ranges are expensive, but not more so than gas ranges, which outnumber them; the fuel and ashes problem makes them troublesome in a school, but they represent the type of equipment used in the winter months, at least, in farm and small village homes. Such ranges, with the blue-flame oil stoves, should be part of the kitchen equipment of all but the exceptionally located rural high school if the cooking experience is to be of the genuine vocational type.

By careful planning one or two sewing machines in good running order may be made to serve the needs of a small class. As to how far the sewing machine equipment is adequate the surveyor offers no opinion.

By Special Subjects

In home nursing, household decoration, laundry work, and household management, the reports on equipment bear out those of

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teachers in regard to conspicuous deficiency. For home nursing 19 schools have no equipment at all; two have a first-aid cabinet only; one has a cabinet and a bed; one has a special room with cabinet and bed; and two use the Red Cross rooms with substantially the same equipment.

For home decoration no equipment at all is reported in 16 cases; 2 schools use their own rooms for purposes of decoration; 2 have made screens or curtains; 5 depend on books and illustrations.

For laundry work the commonest equipment is for pressing clothes only. The detailed report follows:

No equipment at all	5
Special laundry room with complete equipment	3
Using a satisfactory borrowed laundry	1
Tubs, irons, ironing-board, wringer, etc.	4
Tub and ironing board	1
One tub only	2
Iron board and irons	8
Ironing board, but no irons	1

For household management one school has a practice apartment of which girls take charge in rotation.

Reports on library equipment are not detailed, no report at all being made in 4 cases, and the others in rather general terms. The summary follows:

Less than 10 books, property of teacher	5
About a dozen books supplied by school, plus more belonging to the teacher	3
20 to 30 books supplied by school	5
12 or fewer books supplied by school	5
"Good supply" mostly belonging to teacher	3

In six cases the school subscribed to one or more magazines in homemaking.

In discussion of content some mention will be made of the texts and references most frequently used. It appears that half the schools are throwing the burden of library upon the teacher and that the majority have very small resources for book study. School boards and principals are not fully justified in complaining that homemaking is kept on a mechanical basis, while they deny to the pupils the opportunity of access to printed sources of technological information.

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CHAPTER XVI

REACHING THE GIRLS

NO DATA are available to show how far vocational work in homemaking reaches pupils who might profit by it. Considering, however, the relatively small proportion among country girls of adolescent age who are enrolled in high school, the relatively small number of high schools offering vocational courses, the entire absence of industrial schools, evening schools, and continuation schools from the rural districts, it is fair to conclude that hardly a furrow has been turned in a large field of opportunity. The elementary school and junior project work accomplish something, the college extension service something, but mainly with groups below and above the adolescent stage. The division is aware of the deficiency.

For the regularly enrolled high school student there is room to doubt that a four year course calling for seven-twelfths of the pupils' time is the best means of reaching the largest number, or even that such a course is necessary to essentials, whatever they may be. The intermediate school organization is less a misfit with girls than with boys, but deserves particular attention in the matter of revision of content. Short course work is contemplated, but as yet hardly attempted. With the full time of the teacher required for adequate high school instruction it is doubtful that much can be made of it on the present basis.

Teachers were not very prolific in the matter of suggestions with regard to making their work accessible to a large number. Questions and replies in reference to the matter follow:

"What provision do you make for extending some of the benefits of homemaking instruction to pupils in school who are not enrolled in your classes?"

None.....22 Various.....24

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Frequencies of various provisions:

School lunch room	16
Help them with sewing	5
Junior project and grade work	6
Parties and banquets	5
Night class in cookery	2
Posters and style charts	4
Exhibits	2
Hold Homemaking Day	1
Admit to practice house	1
Homemaking club	1

"Do present entrance requirements eliminate girls who might profit by your course?"

No.....21 Yes.....15 No answer.....10

"Do they admit those unfit to profit by the course?"

No.....33 Yes.....7 No answer.....6

"What suggestions have you to offer with regard to entrance requirements?"

No suggestions	17
None but fully matriculated high school pupils should be admitted	2
Should be open to grade 8	7
Entrance should be for full course, not a part	1
High school girls should have free election	6
Age requirements should be observed	2
Girls of seventeen in any grade should be admitted	2
Cooking should be given girls who leave elementary school before completion	3
Preliminary grade work in homemaking should be prerequisite	2

"Is your present course too long?"

Yes.....11 No.....28 No answer..... 7

"Is it too, short?"

Yes.....1 No.....36 No answer..... 9

Evidently teachers are well satisfied with the present length of course, though some favor a shorter one.

"Do all those who might profit by your course know of it?"

Yes.....35 No.....7 No answer.....4

"What means do you use to make the opportunity known?"

None.....11

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Frequency of measures used:

Personal talks with pupils	18
Exhibits of work	18
Writing for newspapers	6
Sending out school circular	3
Junior project teaching	3
Visits to rural schools	2
Demonstrating before grange	2
Articles in Farm Bureau publications	2

Apparently homemaking teachers are somewhat less active than agricultural teachers in the matters of publicity and recruiting.

"What suggestions have you to make as to possible aid to you in the matter?"

No suggestions	27
At beginning of year statement of nature of course, and of its conformity to college entrance requirements should be sent to all prospective pupils	4
Means to educating parents should be used	6
Means to educating faculty should be used	2
One year should be required of all students	2

"What suggestions have you with regard to possible courses for pupils not now admitted to your course?"

No suggestions	16
Offering of one year or two year courses	5
Work in grades VII and VIII	6
Cooking from grade IV on	13
After school classes	2
Junior project clubs	4

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CHAPTER XVII

CONTENT OF THE COURSE

THE content of the course is, in the light of preceding comments, perhaps best illustrated by the following syllabus. The suggestive lists of references have been eliminated, and report offered later on books most frequently used. Though the course suggested goes occasionally beyond the resources of the small community and the needs also, and is faulty in respect to providing what is least complementary to home experience for the greatest number, yet it should go far to insure an enrichment of the present offering. There is no poverty of content in the technological side. If intimate and frequent supervision can be provided for the improvement of teachers in service the trend of teaching under it should be rapidly away from the present mechanical standard. The entire syllabus is quoted.

SYLLABUS

The University of the State of New York
State Department of Education
Division of Agricultural and Industrial Education

Tentative Course of Study
in Homemaking
for
Homemaking Departments
in
High Schools

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Homemaking I

Elementary Foods

The aim of this course is to teach the pupils how to plan and prepare family meals intelligently. Work *other than cooking* should form the greater part of the course. Consideration should be made for planning the food with regard to the needs of the various members of the group, for selecting proper foods in the market and at sensible cost, for organizing the work so as to use equipment and utensils to the best advantage and to accomplish the work with as little waste of energy and time as possible.

In order to do this, preliminary study must be made of rooms, utensils and food before actual preparation of the meals. A study of the composition of various classes of foods with practical experiment, the effect of heat on various substances in food, the effect of combinations of food materials, should precede meal preparation as well as a thorough study of processes of cooking, essential utensils for the cooking processes and organization of work.

All food prepared as a result of class work should be used for some good purpose. When not desiring a meal for class use, these prepared foods should be turned into the lunch room. Plans can be made so this is entirely possible.

As far as possible meals prepared should be served at meal time and to a group desirous and needing the meal. In this way the meals would be self-supporting. If this is not possible, a group from the class may be selected to be served.

Principles	Practice
A study of fuels applied to the preparation of meals.	Visits in vicinity to various agencies where (*a*) Food is prepared for market, such as— Food factories. Bakeries. Dairies.
A study of types and arrangement of kitchen utensils for economy of time and energy.	
A study of the preservation of foods, various methods and agents used.	(*b*) Food is sold— Food shops. Public markets.
How foods are prepared for market.	
Consideration of conservation and thrift in all cooking.	(*c*) Kitchen and dining room equipment is made or sold Factories. Business establishments.
Structure and composition of food.	

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Principles	Practice
Simple laws of nutrition: What body needs. How to get it.	Purchase and care of any equipment for this work.
Planning meals to fit needs discussed above.	Storage of food which may not be used immediately.
Purchase of food used: Various methods of buying. Comparative prices. Care and storage of such food.	Planning of family meals, using size and income of the average family in community.
A study of efficient methods of working to bring about satisfactory and prompt service of a meal.	For one week, illustrating repetition of series with variations in kinds of foods used: Purchase and care of this food. Study of time and cost of meals, with keeping of food accounts, calculation of other expenses. Preparation of meals for family group. At least four breakfasts, six lunches or suppers, and five dinners, including in the series the various typical dishes belonging to the meal. Scheduling of work. Serving of these meals. Clearing away. Care of rooms and equipment.
Esthetic and common sense basis for methods of serving.	

Homemaking II

Elementary Clothing and Design

This course is to be based on the girl's own wardrobe but will include a judicious amount of community problems. The stated principles may be illustrated in projects other than those outlined provided the problems involved are of corresponding difficulty. Care should be taken to have the assigned problem of such a character that the high school girl will realize that she has a real problem that will require thought, study and energy of the same degree as her other high school subjects.

The ninety-minute period may be considered as a directed study period and opportunities should be given for use of reference material, illustration material and daily discussions.

A few lessons in millinery may be introduced in this course if local conditions indicate the need, but the main course in millinery will be part of homemaking IV.

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Principles and Processes	Practice
Study of different kinds of equipment.	Selection of practical problems to be determined by the local need, national emergencies and personal requirements of the individual pupil.
Machines and their attachments.	
Study of textiles from the purchaser's point of view, based on fabrics used in class work, including simple trimming.	
The girl's personal wardrobe as a foundation of year's work.	Each new garment to be simple in construction and decoration.
Principles underlying clothing budget.	Each pupil to complete at least one problem from each group, including at least one hand-made garment.
Planning the garment: Expenditure, design, fabric, comparison with ready-to-wear.	
Use and adaptation of commercial patterns, with free-hand cutting of accessories and changes.	All girls to be able to make a simple one-piece dress or its equivalent at the close of the course.
Different methods of putting garments together.	1. Planning a high school girl's wardrobe.
Basis of judging the value and place of fine handwork.	2. Clothing for pupils (*a*) Undergarments. (*b*) One-piece dress or equivalent.
Standards for speed tests.	3. Children's and infant's clothing.
Economics of clothing buying—Care of wardrobe repair, daily upkeep.	4. Community garments for orphanages, hospitals, and charity organizations: (*a*) Undergarments. (*b*) Simple outer garments.
Interest in community needs.	5. Study of textiles and trimmings, simple household tests for kinds and qualities of fabric purchased or used in class work, with emphasis upon cottons and linens.
Economics of clothing buying.	6. School furnishings and equipments, such as curtains, towels, aprons, etc.
Care of wardrobe, repair, daily upkeep.	7. Care and repair of pupil's wardrobe:
Interest in community needs.	8. (*a*) Brushing, removal of spots, pressing, etc. (*b*) Patching and darning of stockings, undergarments, and outer garments.
Individual responsibility of consumer: Consumer's league. Conditions in garment-making factories.	9. Application of art principles in adaptation of commercial patterns, dress accessories, color schemes, study of fabrics; comparative study of fashion sheets; sketching of garments.
Market conditions of textile fibers.	10. Decorative sewing. Embroidery of table linens, towels, or dress accessories.
Pure textile legislation.	
Design to be related to each problem as to beauty, line, mass and color harmonies.	
Knowledge and use of tools for simple mechanical drawing.	
Representation by pencil sketching. Designs as related to the individual. Relation of fine arts to industrial arts. Value of decoration.	

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Homemaking III

Lunch Room and Special Cookery

It is desirable that the pupils have an opportunity to plan and prepare food for large groups, buying and cooking in quantity, and serving in various ways, thus becoming acquainted with large problems of organization and manipulation, as well as developing adaptability, coöperation, and leadership.

Principles	Practice
Meal problems of the community— Home. Institution: Hospitals. Hotels. Restaurants. Lunch rooms.	Visits to institutions where large numbers of people are fed: Hotels. Hospitals. Restaurants. Lunch rooms.
Menu cards—preparation and use.	A study of food, menus, equipment, rooms, service.
Adaptation of family recipes to large quantity cooking.	Reorganization of recipes to meet special demands.
Special equipment, furnishings, and utensils for large quantity cooking. Kind, cost, care, and manipulation.	Equipping and furnishing the lunch room to bring about greatest saving of energy and time.
Various methods of buying foods in large quantities.	Manipulation and care of any kind of apparatus installed for this work.
The public market.	Visiting centers for selling food of various kinds.
Storage of food materials.	Buying of foods.
Study of the standardized serving—amount, food value, cost of serving, selling price.	Storage of foods.
Menu card—preparation and use.	Organizing the store room.
Methods of serving food to patrons— Cafeteria. Tray. Personal service.	Checking supplies. Making inventories. Figuring cost of food and selling price.
Standard of cleanliness for room, equipment, utensils, handling, food, workers.	Determining food values.
Organization of work and workers.	Preparing menus.
Business methods.	Serving food to patrons.
Keeping accounts, banking, inventories, etc.	Participation in all phases of lunch-room work.
A study of organization and departments which have control of foods.	Organizing work to use time of workers to greatest advantage.
Pure food laws.	Keeping records and accounts.
Food inspection.	Banking.
Standard weights and measures.	

In almost all schools there is a need for a hot lunch, at least during the winter months. This may be as simple as one hot dish,

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such as cocoa or soup, supplementing a packed lunch brought from home. Or it may take on the proportions of a real meal. The group needing it will also vary in size from six or eight to several hundred. Whatever the problem, it offers a splendid field for practice for the homemaking pupils. It is recommended that where the problem does not require the full-time service of a manager, the work be in charge of the homemaking teacher. This will permit strong correlation of the foods classes.

If the school lunch consists of but the one hot dish, the problem is not sufficiently broad to hold the attention of the pupil for the semester. The organization and opening of the lunch can well afford to be a class problem, but thereafter the responsibility for the food may be assigned to two or more pupils in turn and other class work conducted.

If the school lunch does not afford wide enough possibilities for participation in these phases of work, the community offers other opportunities to give the pupils this experience. These may be found in church suppers, grange meals, community suppers, lunches for Y. M. C. A. or Y. W. C. A., refreshments for parties, receptions, teas, food sales, candy sales, picnic lunches, box lunches, etc. It is recommended that the pupils prepare refreshment for parties, give a food sale, and participate in at least one meal for a large number outside the school.

Homemaking IV

Dressmaking and Millinery

This course will be based on more general principles of clothing budgeting, and will include the use of materials more difficult to handle and the renovation of garments. The suggestions regarding Homemaking II would apply to all courses in clothing.

The aim of the lessons in millinery is to give the pupil some general principles governing the selection of appropriate and becoming headwear, with experience in construction work that will aid her in her future capacity as a consumer. A few weeks of this course, not to exceed one-fourth of the time, may be devoted to the study of millinery. Care should be taken in the selection of the

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practical problems that elementary work in which no new problem is presented or which partakes of the nature of repetitive drudgery be eliminated. There are many types of garment work under this second course that may be presented in the light of much more advanced work than in Homemaking II.

The community work in this course may be carried in larger quantities with coöperative work admitting of speed tests and the use of power sewing machines. It is recommended that all girls have the experience of using a power sewing machine at some time during the homemaking course.

Opportunity for speed and accuracy in running through a quantity of garments of the same kind is to be afforded. The use of the community problem will provide this practice.

Principles	Practice
Clothing budgets.	Each pupil to complete at least one problem from the outlined group: 1. The family clothing budget.
Remodeling and renovation.	2. Community problems in large quantities, with division of labor. (*a*) Red Cross. (*b*) Hospitals. 1. Remaking adult garments. 2. Relining coats or wraps. 3. Remodeling personal garments.
Scientific study of machines and attachments.	4. Construction of waists: (*a*) Lingerie. (*b*) Tailored. (*c*) Silk.
Standards for systematizing for time, for speed, and for efficiency.	5. One-piece dress: (*a*) Wool. (*b*) Silk.
Value of coöperative work in construction of community garments. Study of textiles used and discussed in connection with construction work.	6. Semi-tailored construction: (*a*) Skirt. (*b*) Coat or wrap.
Principles of design in use of commercial patterns.	7. Renovation and retrimming.
Care of wool and silk garments.	8. Renovation of headwear for institutional needs.
Principles of design and color applied to new garments, to renovation, and combination of materials.	9. Making of headwear: (*a*) Personal need. (*b*) Family need. (*c*) Children.
Laws of appropriate dress.	10. Application of principles of design in making of

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Principles	Practice
Psychology of fashions.	simple trimmings for gowns, in making of ribbon flowers and trimmings for hats.
Economics and æsthetic basis for selection and purchasing of clothing.	11. Study of textiles used in construction work and in class discussions, with simple home tests for identification, strength, color, and adulteration. Emphasis upon silks and woolens.
Standard for criticism and trimmings for hats.	12. Shopping trips, with special attention to construction of ready-to-wear garments, new styles for class criticisms and suggestions for class construction work.
Renovation of materials and trimmings for hats.	13. Trips to manufacturing plants pertaining to the subject.
The high school girl's hat—simplicity, becomingness, and individuality.	

Homemaking V

House Planning and Decoration

The aim of this course is to give such instruction as will enable the pupils to appreciate the real meaning of the home, to be able to select and plan a simple house with its furnishings so as to serve the best interests of the individual and the family, economic, sanitary and aesthetic.

Principles	Practice
The development of the family. The evolution of the home and the house.	1. Drawing of floor plans, simple houses.
Individual responsibility and coöperation.	2. Drawings of elevation and details of house accessories.
Choice of home—rent or purchase.	3. Study of different types of plumbing, methods of ventilation; sanitary principles to be applied to house plan.
Principles of site—location.	4. Study of local sites for houses.
Simple mechanical drawing for plans.	5. Selection and arrangement of furniture and furnishings for rooms.
Principles of simple house construction.	6. Pupil's personal room. Pupil's house. School apartment or rooms.
Study of building materials.	
Principles of sanitation, ventilation, and plumbing.	
Study of materials and fabrics used in furniture and furnishings. Brief study of period furnishings.	
Principles of economy, appropriateness to purpose, and beauty, applied to purchase of furniture and furnishings.	

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Homemaking VI-A

The course in household science is based upon the work in academic science, either biology, chemistry, or physics. It is not in any way to be considered as a substitute for academic science.

Many of the principles and practices outlined here can well be taught in connection with the preceding courses. For instance, combustion with its attendant principles and practice in use of stoves could be studied in connection with the work with fuels in Course I; the laws of mechanical appliances in the home—levers, screws—could well be studied when apparatus illustrating these principles—scissors, coffee-mill, meat-chopper, vacuum cleaner—is being used in connection with class and home practice in Courses I and II.

These studies should be made in direct connection with practical use and practice in the various fields of housekeeping, and form a basis of understanding for many of these processes.

Principles	Practice
Laws of expansion—gases, liquids, solids.	Explanation of common every-day experiences, such as floating ice, breaking of thick glass when put in hot water, lifting of lids of milk bottles when frozen.
Evaporation.	Using pressure cooker.
Source of water supplies for towns and cities.	Cookers built on principle of evaporation.
Methods of purifying water for drinking.	Study of local water supply and purification.
Solutions, emulsions, suspensions, filtrations, tinctures, solution of gas.	Sewage.
Crystallization and amorphous materials.	Common household examples of compounds, solutions, crystalline substances.
Oxidation and oxidizing agents.	Study of fuels, illuminants, and various other kinds of oxidation agents.
Combustion.	Fire extinguishers.
Temperature, thermometer.	Use of various kinds of thermometers and value of this practice in household processes.
Heat and its transference. Conduction. Radiation.	Ventilation.
Acids—bases and salts.	Heating systems.
Photography.	Processes of cooking foods and applying heat in various other processes.
Oils, fats—drying oils; volatile oils.	Heat appliances.
Soap—soft, hard, liquid, scouring.	Fireless cookers and refrigerators.
Effects of plants on preservation of household materials.	Use of various acids, bases, and salts in the homes. Baking powders. Washing powders, etc.

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Principles	Practice
	Study and comparison of cleaning agents.
	Preservation of various kinds of household materials.
Metals.	Use and care of metals in the home.
Laws of mechanical applicances in the home, such as—	Use and care of mechanical appliances in the home to illustrate the principle taught.
Levers.	Levers—scissors, pliers, can-opener, nut-cracker, fork and knife, sugar tongs, etc.
Wheel and axle.	Wheel and Axle—coffee-mill, wringer, bread-mixer.
Pulleys.	Pulleys—window pulleys.
Screws.	Screw—meat-chopper, sealer, faucet.
Air appliances.	Air appliances—force pump water system, vacuum cleaners, fire extinguisher, siphon, trap, gas meter.
Electricity:	Household electrical appliances for heating, cooking, lighting, and mechanical work—their use and care.
The electric cell.	
The motor for heating; for lighting.	

Homemaking VI–B

Dietetics

The basis for this course shall be the food requirements of the body, studying, first, the food needs of the high school girl herself, the problem nearest at hand, and of more vital interest to the girl. From this as a starting point, other members of the family are added, one at a time to study special needs, then adaptation made to fit the advancing complexity of the problem. The type of meals planned should be those within the income of the actual people in the community.

Principles	Practice
Nutrition requirements of the body in health.	Study of composition of foods.
Composition of foods.	Calculation and preparation of diets for various ages and various conditions of income.
Relation of cost of foods to food value.	
Food for children and the aged.	The following groups are suggested as a basis for planning or preparing meals:
	Group I—High school girls.
Effect of various conditions of age, activity, etc., on food requirement.	Group II—High school girl.
	Brother—ten years old.
	Mother.
	Father.
	Grandmother.

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Principles	Practice
Effect of abnormal body conditions.	Group III—High school girl. Brother—ten years old. Mother. Father. Grandmother. Baby sister—two years old.
Effect of abnormal body conditions on food requirement.	Group IV—Nutrition class of school children. Day's meals planned and prepared for some one in the family for the following disorders: Constipation. Anemia. Diarrhea. Indigestion.

Child Care

Comparative study of the anatomy and physiology of infants and children and adjustment in care and feeding.	Every-day care of the babies and small children— Bathing. Dressing and kind of clothes. Feeding, sleeping. Air and exercise. Playtime training.

Home Nursing

A study of physiology applied to abnormal physical conditions.	Things to have ready for sickness.
Principles of home and community hygiene applied to abnormal physical conditions.	Care of the sick-room and sick-room appliances. Beds and bedmaking. Personal care of the invalid. Feeding the sick. Home treatments and how to give them.

Homemaking VII

Household Management

The course in Household Management is planned to give the student an appreciation of the place of the home in the community, an understanding of the problems of running a home, and the organization for the most efficient conduct. In this course are brought together the problems developing to rather full completion in earlier courses and built up as one big rounded homemaking job.

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Principles	Practice
Business management.	Practice in classrooms.
Keeping accounts.	Business practice.
Checking supplies.	Keeping such accounts as work afforded.
Inventories, requisitions, and reports.	Making requisitions and reports.
Rendering bills.	Making inventories.
The family budget.	Checking supplies.
Economics.	Rendering bills.
Family life—what it is for; what value family is to the individual, and vice versa.	Working out, as far as possible, family budget in one or more phases.
	Study of the local problem of housekeeping.
Community life.	Care of house and equipment and supplies.
Responsibility of family to the community.	Covering care of floors, walls, windows, woodwork, and all material making up the structure.
A study of local communities and their general organization.	Covering the care of the equipment such as rugs and carpets, hangings, furniture, utensils, dishes, silver.
Study of possible active organizations.	
Purpose.	Study of the processes involved in this care.
Dues and how spent.	To set standard time.
Who is eligible.	To find easiest and best and quickest way.
Approximate membership.	Organization of the household activities and carrying them out on schedule time.
Probable effect in community.	Laundering of general clothing.
Standards of living.	Laundering of special fabrics, such as wool, silk, lace, etc.
Labor in the home.	Study of the local community life and its organization.
Prevention of the cause of destruction by dirt.	Special study of active organizations and their effect in this community and how we can help.
Systematic planning of household duties with and without service.	
Laundering.	

Homemaking VIII

Advanced Dressmaking and Costume Design

This course is aimed to give the pupil high ideals of dress from the art and design point of view, to give her a specific foundation of judgment for selecting the type of garment that will be distinctive in style, exquisite in fabric, and efficient in construction. It is also hoped that there will be aroused an interest in textile designing, costume designing, and high-grade dressmaking that may help her in the selection of her wage-earning vocation.

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A very simple draft may be introduced in this course if the teacher deems it necessary, although if the principles of design have been thoroughly adapted to the use of the commercial patterns, the teaching of drafting, as such, would not be required.

It is suggested that for the study of fabrics large pieces—from one-half yard to one yard length—be obtained of as many kinds of fabrics, beautiful in texture and design, as is possible. Special funds may be gathered for this purpose.

Principles	Practice
History.	1. The study of historic costume to be used as a foundation for sketching and designing patterns for present-day dress. To be worked out in paper or soft fabric.
Principles of design applied to designing with paper and fabrics.	
Principles of draping and fashioning with paper and fabrics.	2. Use of the dressmaking form in construction of a fitted lining to be used as the foundation for draping and designing.
Principles of making patterns.	
Study of fabrics to be used for afternoon, special and evening gowns, and wraps.	3. Use of paper and light weight fabric in designing and draping costumes.
Principles of designing for dyeing fabrics to be used in construction for special purposes, school plays, and pageants.	4. The designing of patterns to be used in construction—
Principles of construction appropriate for costume for special occasions, for school plays, and when the dressmaking forms are to be used.	5. Garments to be constructed (*a*) Afternoon dress. (*b*) Evening dress. (*c*) Wrap. (*d*) Graduating dress. (*e*) Special costumes.
Study of equipments necessary for the type of work in this subject.	
Use of illustrative fabrics in as large pieces as available.	6. Study of special fabrics, new fabrics in market, with attention to design, texture, use, and methods of manufacture.
	7. Dyeing of materials to be used in construction of garments or for special costumes. (*a*) In the piece. (*b*) Block print. (*c*) Batik.
Principles of design applied to exhibits of the clothing standards for criticism of finished garments.	8. Class criticism of finished products.
	9. Arrangement of exhibit of class work.
	10. Trips to museum to study exhibit of fabrics; garments; study of traveling exhibits to be obtained from the museums.

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SUGGESTED HOME PROJECTS

HOMEMAKING I

ELEMENTARY FOODS

Meal preparation for the family:
- Planning.
- Buying food.
- Care of such food.
- Cooking.
- Serving.
- Clearing away.

Food preservation:
- Planning year's supply of fruit, vegetables, meats, eggs.
- Purchase.
- Preparation.
- Storage.

Gardening:
- Planning garden to supply family needs for summer's consumption and preservation.
- Harvesting.
- Care.

Care and storage of all household food supplies for immediate and future consumption.

Study of fuels of the household, amount used, cost, economical use, added equipment to increase economy or comfort.

Care of the kitchen and dining rooms and the equipment.

Use of Girl Scout or Camp Fire organization as possible outlet.

HOMEMAKING II

ELEMENTARY CLOTHING AND APPLIED DESIGN

1. Wardrobe of one member of a family:
   - Inventory of garments on hand.
   - Planning replenishing.
   - Selection of ready-to-wear. garments.
   - Construction of new garments.
   - Mending and care.
   - Cost in money and time.
2. Charge of household textiles:
   - Inventory.
   - Replenishment by purchase.
   - Care.
   - Seasonal storage.
   - Repair.
   - Construction of new.
3. Family mending.
4. Clothing for families in need.
5. Assembling organization and care of equipment for family sewing.

HOMEMAKING III

LUNCHEON AND SPECIAL COOKERY

Planning meals and refreshment; calculation of costs and food values.

Buying food, organizing work, and serving for any of the following:
- Reception or tea.
- Picnic.
- Club or society supper.
- Party.
- Church supper.
- Box lunch for traveling.

Study of local market conditions.

Studying the seasonal foods in market-season, price, source, place in the meal.

HOMEMAKING IV

DRESSMAKING AND MILLINERY

1. Renovation projects of family wardrobe—
   - Planning.
   - Construction.
   - Designing—combination of material.
   - Reports.
2. Millinery for season for self or member of family.
3. Child's outfit for season.
4. Care of knitted garments for family.
5. Renovation and remodeling for missionary boxes.
6. The clothing budget for an individual.
7. Care of woolen and silken garments of the household, including cleaning, pressing, and repair.

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Homemaking V

House Planning and Decoration

1. Layout of grounds for garden, flowers, and house, with costs, seasonal changes, and time spent.
2. Replanning of pupil's home to meet the desired results for beauty, sanitation, and convenience.
3. Plan for rearrangement of pupil's own room, decoration, furniture, hangings, and arrangement.
4. Household furnishings:
   - Bedding.
   - Towels.
   - Curtains.
   - Furniture, carpets, and rugs.
   - Magazines and books.

Homemaking VI–A

Household Science

1. Care and repair of any household appliances.
2. Care of household wastes.
3. Assembling, storage and care of cleaning equipment for the house.
4. Dyeing.
5. Planning and overseeing the construction of simple devices to reduce time and labor of housewife and improve housekeeping methods.
6. Assembling and use of agents for simple household tests for food or clothing.

Homemaking VI–B

Dietetics: Home Nursing and Child Care

1. Caring for a young child.
   - Foods and meals.
   - Bathing and dressing.
   - Play teaching.
2. Caring for an invalid.
   - Food preparation.
   - Clothing.
   - Room.
   - Outdoor air.
   - Amusements.
3. Planning the family dietaries for normal conditions.
4. Planning dietaries for individual members of family who need special diets.
5. Assembling and use of materials for medicine chest and emergency cabinet.

Homemaking VII

Household Management

1. Preparing family budget and keeping accounts.
2. Preparing personal budget and keeping personal accounts.
3. Storage of household staple supplies.
   - Food.
   - Textiles.
   - Cleaning materials.
4. Laundering:
   - Assembling laundering supplies and equipment.
   - Removal of stains.
   - Organizing and supervising work.
5. Organization of family household work, with attention to service of maid.
6. Time tests for specific duties in the household for standardization.
7. Study of some local active organization.
   - Becoming a member.

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Homemaking VIII

Advanced Dressmaking and Costume Design

1. The wardrobe of a girl planning to go to college.
2. Complete graduating outfit.
3. Little brother's wardrobe—with emphasis upon remodeling larger clothing into small boy's suit, tailoring problems.
4. Family clothing budget.
5. Original designs for fashion magazines to be submitted to commercial magazines or papers.
6. Original designs for costumes for school play or pageant.

(Syllabus ends here)

Reading Sources

The standard of technological content tends to follow the texts and references used. Accordingly, a brief summary of reading sources by subjects is appended.

Elementary Foods

Greer—Text-book of Cooking.... 28
No other book was reported more than four times.
Twelve others.

Elementary Clothing and Design

Baldt—Clothing for Women.... 22
Kinne and Cooley—Shelter and clothing..... 16
McGowan and Waite—Textiles and clothing..... 6
Eleven others.

Lunch Room and Special Cookery

Farmer—Boston Cooking School Cook Book..... 9
Smith—Recipes for Fifty..... 8
Nine others.

House Planning and Decoration

Kinne and Cooley—Shelter and Clothing..... 7
Quinn—Planning and Furnishing a Home..... 6
White—Successful Houses and How to Build Them..... 5
Twelve others.

Household Science

Lynde—Physics of the Household. 11
Snell—Elementary Household Chemistry..... 8
Eleven others.

Dietetics, Home Nursing, Child Care

Rose—Feeding the Family..... 16
Akens—Home Nurse's Handbook. 11
Willard and Gillette—Dietetics for High School..... 9
Twelve others.

Home Management

Taber—Business of the Household 13
Balderston—Housewifery..... 8
Fredericks—The New Housekeeping..... 5
Seven others.

Advanced Dressmaking and Costume Design

Baldt—Clothing for Women..... 17
Fales—Dressmaking..... 9
Seven others.

Other Subjects in Homemaking

Balderston—Laundering..... 5
Reeves—Home Millinery..... 5
Eighteen others.

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CHAPTER XVIII

BRIEF SUMMARY OF RECOMMENDATIONS

ALTHOUGH the foregoing study reveals considerable deficiencies as well as merits in the present organization of means to vocational education in the rural districts of the State, yet, on the whole, the policy of the Division of Vocational and Extension Education appears sufficiently liberal and far sighted, its organization sufficiently flexible, and its activity such that major recommendations made by the surveyor in the course of the study have been in some measure anticipated, and steps to the enlargement of opportunity for boys and girls in the country already taken or definitely in contemplation. With the hope of giving reënforcement to the division in the development of its progressive policy a brief summary of more important needs is here given.

Teaching for Vocational Choice

Fundamental to the realization for the country boy of anything like democratic equality of opportunity in finding himself in vocation and achieving a reasonable preparation for intelligent entrance upon a life of service, is a system of prevocational education and vocational guidance. With all openings in vocation accessible to the rural community center in which the school may be located, the pupil should have reasonably intimate acquaintance. In them, so far as it be possible to do so, he should be given chance of representative participation, in order to test out the aptitudes and interests which may be in him for such possible pursuits. Equally he is entitled as an American citizen to discover the opportunities in, and his capacity for, a large range of occupations to which ordinarily the school is by no means accessible. In the first case observation, vocational participation, type training, and instruction in

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school, are possibilities. In the second case they are not, with the exception of certain type training and instruction in handicraft and commercial vocations. But, in so far as the rural vocations and the village industrial occupations accessible to the school possess elements of likeness to urban and other remote types of vocation, to that extent informational teaching by book and illustration may be made meaningful through comparison and contrast with what the pupil has learned at first hand of vocational opportunities and the requirements of vocations. By the use, then, of community vocational resources to the full and by supplementation through informational studies of vocations the school can very greatly enlarge the basis of experience in the pupil necessary to the choice of his life pursuit.

In the case of agriculture the need for prevocational instruction and guidance is somewhat less exigent than in the case of the other fields of vocation—industrial, commercial, and professional. The farm and the country home inevitably provide some experience of vocational requirements in those fields and the kind of life implied in the taking up of such pursuits. But much can be done to enrich the field of knowledge and experience here. In the case of the individual the farm and the home are seldom fully representative of the exigencies or opportunities of country work and living. But if the resources of the community be opened to the individual, the scope of his experience may often be made to include much that is representative of what the life of the country has to offer and of his fitness for it. Since agriculture includes vocations in which immediate experience is impossible, a supplementation of observation and participation in the work of the farm and of the home through formal instruction and readings is needed.

Actual test and experience for boys may be furnished in the mechanic trades through typical shop teaching of the sort proposed for the general industrial schools by the specialist of the division in charge of such schools. But that equipment can be such, and teaching under conditions so aptly vocational, as to make it functional in high degree as preparation for entrance upon the job is, in the country school, doubtful. In the case of trades and professions carried on under the system of "machinofacture," which is so

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typical of industrial life in the larger centers, it is doubtful that much more than informational guidance can be given, with such opportunity for observation as the immediate or nearby communities afford. The same statement may be made with regard to commercial and professional occupations open to both men and women. In the clerical and office occupations it may be possible to provide actual test of ability and even some development of ability, but actual vocational work of an effective sort through the agency of the public school is doubtful. Having given, however, to the boy or girl a basis of intelligent choice of occupation, the public school has in large part discharged its duty. And without that basis no scheme of vocational education whether in the occupations of country, village, or city can be made truly democratic and effective.

With respect to the single vocation of the homekeeper it appears to the surveyor that preparation is so universally a need that every girl may reasonably be obligated to demonstrate the possession of the fundamental skills and knowledges necessary to the homekeeper, or else to pursue a course directly preparatory. Guidance to election of allied pursuits may in some measure, of course, be an appropriate accompaniment of such instruction and training. With respect to other vocational openings the girl may be placed upon the same basis as the boy, but with respect to education in the duties, obligations, and opportunities of home life a compulsory requirement is quite as justifiable from the social and individual standpoints as compulsory requirements in respect to the instrumental studies of the elementary school curriculum. That, for any long time, the requirement should be set for high school pupils only, the minority in all communities, is not to be acknowledged. Whatever the "fundamentals" may turn out to be they should ultimately be made a part of the elementary school curriculum for girls.

Now the surveyor is keenly aware that the installation of an adequate system of prevocational teaching in the rural schools is a matter presenting great administrative difficulties. The suggestion of the junior high school organization for the rural districts appears to offer a solution. But the organization of the junior high

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school in a center limited in resources of support for schools, in resources of vocational contact, in enrolment, is far from being as easy as is the case in those larger centers in which the organization has achieved its notable successes. A range of departmentalized studies for the purpose of self-discovery on the part of pupils indicates a size of plant and staff that is out of the question for the smaller centers. An equalization of the burden of support through State aid and a larger unit of taxation, and equalization of administrative responsibility through a new intermediate unit, may ease the situation measurably, but, in the opinion of the surveyor, they will not make possible the adoption of the "Rochester plan" of prevocational education in the rural districts of the State. The employment on a twelve months' basis of specially qualified teachers to work to the end of vocational guidance in the upper elementary grades and possibly in the first year of the established high school is a conceivable development through which a beginning of the establishment of the selective principle may be inaugurated. Such teachers must, of course, possess professional and technical qualifications of greater range than is now required for the departmental teachers of either junior or senior high schools. A consideration of the necessity for and the possibilities of prevocational educational education as a basis to any truly functional vocational education for country boys and girls is earnestly recommended to the division and the State Department of Education.

Following the establishment of such a system there is indicated a very considerable increase of the number of schools offering vocational teaching appropriate to preparation in the vocations of the country and the village. While hardly one school in ten offers anything at all in the way of vocational education to country boys and girls, even such as make their way into the high school as regular matriculants, but a minimum of opportunity is offered to such as might profit by it.

Mechanic Arts

The schools already designated schools of "agriculture, mechanic arts, and homemaking," as has been noted, offer nothing in the way of mechanic arts teaching. A beginning is indicated here. There

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is a large function of guidance that could be accomplished in the beginnings of such teaching, and a distinct preparatory objective in several directions. The open country still has its mechanics and artisans, with whom the machine equipment plays a minor part. To boys who would be carpenters, masons, painters, garage mechanics, etc., valuable preparatory experience under the "stay-at-home" organization of the country or village high school is a possibility.

Closer Adaptation

The reorganization of existing courses both in agriculture and in homemaking and the establishment of new courses in order that the most significant teaching may reach the greatest number calls for no revolution in the present administrative scheme. Nor does the insistence upon qualification, professional and technical, of teachers in terms of the job which they have to do rather than in general terms imply anything radical. Nor, again, the continuous expansion of opportunities for improvement of teachers in service, except as such in part implies the need for more intimate and frequent supervisory service on the plan of some unit intermediate between the State and the high school district.

Travel Allowances

Increased allotment for travel to teachers in the supervision of the home work of pupils enrolled in vocational courses is important. It has been noted that project supervision is still far from on a satisfactory basis, at the same time that success in it is central to the development of the wise vocational policy of the division. Teachers must be free on the financial side to undertake the central activity of their calling with the utmost effectiveness. A liberal standard allowance to meet the needs of the most inaccessible school should be discovered, the payment assumed by the State, and the teachers then held strictly to the use of their time in accordance with administrative requirements. One cause of the most conspicuous weakness in present teaching in vocation in the country high schools would thereby be removed.

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Vocational Curricula

More attention should be given to the curriculum for country boys and girls enrolled in vocational courses. It should be organized with reference to the civic and social obligations of rural living, and to the achievement of those intellectual insights and aesthetic and recreational enjoyments which the leisure and the intimate personal contacts of country living afford. Much restricted and careful selection in mathematics and expansion of the studies of country social and economic problems now found in a few schools would strengthen it. Music is an important resource of the isolated home and should not be overlooked. The love of good reading is another. Certainly the present curriculum, so called, can be much improved. It is a hybrid propaedeutic—a cross between the academic college preparatory and the vocational, without the merits of the one for the few or the merits of the other for the many.

Publicity

It is the opinion of the surveyor that the ends of vocational education in the country schools would be measurably served by a greater publicity on the part of the division with respect to the opportunities that it offers, the philosophy which guides it, and the nature of the policy under which it promotes the development of vocational education. It should do something to overcome public inertia and the sometimes active misrepresentation of those in whose eyes it appears a rival.

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CHAPTER XIX

OBSERVATION OF TEACHING OF AGRICULTURE IN STATE SCHOOLS OF AGRICULTURE

THE same system of observation and record was used in the State schools as in the high school departments. Four of the six schools were visited and the work of 14 teachers observed. It is to be noted that the teacher in the State school is in considerable measure a specialist, devoting his time to a single aspect or division of agriculture, such as animal husbandry, fruit growing, farm crops and soils, poultry husbandry, repair and construction work, etc. Within such fields, in the judgment of the observer, the technical acquirements of State school teachers appear in general superior to those of the high school teachers responsible for all of the several aspects. Perhaps as a consequence of the technical specialization a tendency to subject treatment rather than to pupil adaptation appears also more marked in teachers of the State schools. The technical expert is more in evidence, the professional teacher less so than in the case of the high schools. Yet, perhaps because of superior technical resource, the teaching, in general, in the State schools tends to rank with the teaching seen in the high schools. The judgment is made in the absence of a detailed record of the schooling and experience of pupils dealt with. But the following generalization with respect to them is well founded. Pupils in the State schools are more mature, in the maximum of greater school and vocational experience, than high school pupils, in the minimum of less. There is a smaller proportion of farm boys; but of those farm boys a larger proportion is immediately engaged in actual earning in agriculture than is the case in the high school. The range of variability is increased by the presence in the regular courses of numbers of former soldiers in

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process of rehabilitation. The State school teacher has greater need of professional insight and understanding than the high school teacher. For the most experienced of his pupils his teaching is well adapted—for the least experienced it appears to have little adaptation.

Sixteen "lessons" were observed, classifying as follows: Poultry husbandry, 1; vegetable gardening, 1; farm mechanics and shop work, 2; farm crops, 2; agricultural chemistry, 1; animal husbandry, 2; dairying, 1; fruit growing, 3; agricultural engineering, 1; farm management, 2; classroom lessons, 11; laboratory lessons, 3; shop lessons, 1; field lessons, 1.

In view of the season of instruction, October to April, field work tends to a minimum. In one school the director stated that no attempt was made at field observation and practice, but chief emphasis given to classroom instruction, inasmuch as six months were spent by pupils on farms where little of technology could be taught under the remote and infrequent supervision which results from the attempt to follow up pupils in all parts of the State.

The main topics of lessons observed are as follows:

Poultry Husbandry
Feeding for egg production

Vegetable Gardening
Onion growing

Farm Mechanics and Shop
Qualities of lumber
Link forging

Farm Crops
Barley
Standard rotations

Agricultural Chemistry
The salts of iron; Bordeaux

Animal Husbandry
Feeding horses
Ration for swine

Dairying
Ice-cream making

Fruit Growing
Orchard layout
Morphology of the apple
Decay of stored apples

Agricultural Engineering
Running a traverse

Farm Management
Seasonal price fluctuation
Crop rotation

In general the size of classes is well adapted to classroom instruction. The shop class had just enough equipment for all. The field class, though divided into two sections, was too large for the effective participation of all members, and the class in making ice-cream was at least double the number that could work effectively.

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DISTRIBUTION OF ATTENDANCE

Number pupils present	Total	Freshmen	Juniors	Seniors	Mixed
6	1	1	..	..	..
8	1	..	1	..	..
11	1	..	..	..	1
12	1	..	1	..	..
14	1	..	..	..	1
15	4	1	1	1	1
16	1	1	..	..	..
17	2	1	..	1	..
19	1	..	1	..	..
20	1	..	..	1	..
22	1	..	..	..	1
23	1	..	..	1	..
	16	4	4	4	4

Attendance at laboratory lessons..... 11–17–14
Attendance at field lesson..... 22
Attendance at shop lesson..... 15

SPECIAL PROVISIONS OR DEFICIENCIES IN ECONOMY OF TIME OR EFFORT

None..... 9
Ready in all particulars..... 1
Teacher and majority of class late..... 4
Unready..... 3

TIME WASTED PRELIMINARY TO TEACHING

5 minutes or less..... 8
7 minutes..... 2
15 minutes..... 1
25 minutes..... 1

The waste of time was conspicuous in one school only. In every lesson the pupils wandered in from five to twenty minutes after the beginning of the hour, and two teachers were very late in arriving.

AIMS OF LESSON

Stated to class..... 4
Told to observer..... 6
Judged by observer..... 6
To cover the ground..... 2
To test knowledge..... 2

AIMS OF LESSON (*Continued*)

To develop principles..... 2
To apply principles..... 3
To give information..... 2
To make a plan..... 3
To make a product..... 2

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Attitude of Pupils

	Class-room	Labora-tory	Shop	Field	Total
Attentive (eagerly interested)	1	0	0	0	1
Orderly	6	2	1	1	10
Indifferent	2	1	0	0	3
Disorderly	2	0	0	0	2

Portion of Class Kept Busy

	Classroom	Laboratory	Shop	Field
All	2	1	1	0
7/8	1	0	0	0
4/5	1	0	0	0
3/4	2	1	0	0
1/2	0	0	0	1
1/4	3	1	0	0
1/10	2	0	0	0

Activity of the Class

	Classroom	Other
Active in questioning	0	1
Active in criticism and questioning	6	0
Active in contribution, criticism, questioning	1	0
Not active in any of those forms	4	4

Assignment

Oral	8	Record made by pupils	2
Written	1	Group assignments (all alike)	9
None	7	Text reading	5
End of lesson	9	Suggestive guidance to study given	2
Time given one minute or less	7	Varied reference	2
Time given two minutes	1	Problem	1
Time given three minutes	1	Project	1

Planning by Teacher

	Classroom	Other	Total
Clear evidence	4	1	5
Slight evidence	3	2	5
No evidence	4	2	6

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PREPARATION BY TEACHER

Definite preparation	6	2	8
Slight preparation	2	1	3
No preparation	3	2	5

PREPARATION BY CLASS

Well prepared	4	1	5
Some preparation	0	1	1
No preparation	7	3	10

The showing in preparation by the class is poor.

SYSTEM AND UNITY IN LESSONS

Clearly evident	7	5	12
Slightly evident	1	0	1
Not present	3	0	3

TYPE OF LESSON

Topic discussion	8	0	8
Review	2	0	2
Lecture	1	0	1
Exercise	0	5	5

The topic discussion prevails in classroom as it did in the high school. In laboratory, shop, and field lessons, the required direction-following exercise was the only type observed.

PROCEDURE (CLASSROOM)	Frequencies
Question and answer	10
Telling	8
Note taking by pupils	2
Blackboard work by pupils	3

The tendency to lecture, though only one typical lecture dictation was noted, is strong among the specialists of the State schools. Yet, in contrast made with observation of the same type of schools in a study six years previous, including two of those of the survey, the increase in pupil activity is marked. In method at least the State schools copy the college less than formerly.

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Concreteness (Classroom)

Objective illustration, *e. g.*, specimens in hands of pupils	3
Charts	1
Reference to pupils' experience	6
None	2

Initiative, Evaluation, Organization (Classroom)

Attention given to initiative	0
Attention given to evaluation	1
Attention given to organization	2
Attention given to initiative and evaluation	1
Attention given to evaluation and organization	2
Attention given to all three	1
Attention given to none	4

Other Lessons—Procedures

Group teaching primarily		Individual teaching primarily	
Field lessons	1	Shop lessons	1
Laboratory lessons	2	Laboratory lessons	1
Procedures		Procedures	
Direction and practice	3	Demonstration, direction, and practice	2

Speed and Accuracy

Initiative, Evaluation, Organization

Attention given to accuracy	2
Attention given to organization	2

Rating of Teachers by Observer

	No.		Percent
Very high grade teaching	2	above normal	35½
Superior teaching	3		
Normally good teaching	6		42½
Inferior teaching	3	below normal	21½
Very low grade teaching	0		

The small numbers make percentage ratings doubtful, yet approximately 40 percent of all teachers in agriculture in the State schools were observed. The proportion of exceptionally good teaching is somewhat higher in the State schools than in the high schools, but it appears that the two groups of teachers do not rate very differently. Both are, on the whole, good teachers and superior to the run in secondary schools. The faults of the two are much the same. In organization of other than classroom work the high school teachers appear slightly superior.

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Farm Practice Requirements

Rehabilitation students are, for the most part, kept at the school for a third term of instruction in which practical work on the school farm plays a part. Regularly enrolled pupils not under federal control are assigned to employment on farms in various parts of the State for six months in each of two years, sometimes the home farm, more often another. The type of farm, after the first year, is chosen, if possible, to conform to the special interests of the students, *e. g.*, dairy for one, fruit growing for another.

A systematic procedure in study and record of the farm employment is used, of which an example is submitted through the courtesy of Director Knapp, of Cobleskill. Teachers are assigned to visit employed boys during the summer. On account of the very heavy expense in time and money involved in the attempt to follow up boys scattered over so large a State, the visiting amounts to little more than inspection on one or two occasions during the season. Under the system boys get valuable practical experience, but it hardly deserves the appellation "directed farm experience" from an educative standpoint. The example follows:

General Instructions

1. Keep a diary of the summer's work according to the printed form furnished.

2. Keep an accurate record of all field crops grown on the farm according to outline. Use separate sheet for each field of each crop, as where there are two or more fields of corn use two or more crop record sheets.

3. Keep a daily Labor record of all work done on the farm. List and total each day, carrying previous total to date forward each day.

4. Wherever a farm map does not exist, such a map, giving areas, boundaries, and dimensions, must be drawn by the student, and where such a map exists, he should make a copy of it within sixty days of date of arrival.

5. A sketch giving the accurate and actual building arrangement, interior and exterior, shall be made by the student within ninety days of arrival. Distances should be measured with tape or measuring stick. The coöperation of the owner should be secured.

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6. Types of soils must be studied in connection with the work. Make use of County Soil Map if one exists—otherwise from observation.

7. A standard list of operations will be given you. Check with one check all that you have done. Double check all that you are proficient in.

8. Students on specialized dairy farms must keep a dairy record.

9. The records must be kept in order and up to date ready for inspection at any time by any member of the instruction staff. The record will be used on your return to school to make a summary of your summer's work.

10. *Remember that the farmer has not hired you to run his farm. Therefore, keep your eyes open, your head and hands busy, and your mouth shut.*

"Do not put off until tomorrow that which should be done today."

Farm Summary

State.....	
Operator.....	P. O. address.....
Landlord.....	P. O. address.....
Township.....	Soil types.....
Topography.....	
Miles to town.....	Miles from shipping station.....
Acres owned by landlord.....	
Farm area.....	Owned by operator.....
Cash rented.....	Share rented.....
Woods.....	Woods pastured.....
Other pasture not tillable.....	Tillable area.....
Permanent pasture tillable.....	Pasture in rotation.....
Total pasture.....	Waste, roads, farmstead, etc.....

Crop Record Sheet

To be kept for each field or each crop on the farm

1. Crop.....
2. Acreage..... Date of plowing.....
3. Dates of preparation and implements used.....
4. Variety..... Purpose.....
5. Date of planting..... .....
6. Method of planting.....
7. Rate of planting.....
8. Dates of cultivation (1) (2) (3) (4) (5) .....
9. Treatment during season.....
10. Date of harvesting.....
11. Method of harvesting.....
12. Twine used pounds.....
13. Yields in bushels or tons.....
14. Previous crop grown on this field.....

Remarks: Soil types, etc.....

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1. Milking
2. Feeding, dairy cattle, yearlings, calves
3. Grooming
4. Fitting for show
5. Care of stables—disinfecting
6. Whitewash
7. Mix grain
8. Cleaning cows for milking
9. Drive horses
10. Harness
11. Feed and care for horses
12. Same for sheep and swine
13. Care of 100 or more laying hens
14. Care and feeding of growing chicks
15. Care of breeding pens
16. Selecting laying hens
17. Running incubators
18. Candling, cleaning, grading, and packing of eggs
19. Cleaning and disinfecting
20. Sticking and debraining
21. Picking, dry and scald
22. Drawing
23. Culling fowls
24. Culling cockerels
25. Culling pullets
26. Plowing — Walking plow, Sulky plow
27. Manure spreader
28. Hand spreading
29. Disking
30. Harrowing
31. Running grain drill
32. Corn planter
33. Potato planter
34. Cabbage planter
35. Wheelbarrow seeder
36. Lime and fertilizer sower
37. Hand seeder
38. Hand corn planter
39. Hand drill
40. Cultivator
41. Hoe
42. Single horse cultivator
43. Two horse cultivator, single and double row cultivator
44. Weeder
45. Roller
46. Surfacer
47. Plank drag
48. Mowing by hand
49. Mowing by machine
50. Reaping by machine
51. Operating grain binder
52. Operating corn harvester
53. Operating ensilage cutter
54. Operating side delivery rake
55. Operating dump rake
56. Operating hay loader
57. Operating hay fork sling
58. Operating potato digger
59. Operating potato hiller
60. Operating bean harvester
61. Operating threshing machine
62. 1. Feeding
    2. Bagger
    3. Stack
    4. Stacked wind blower
63. Operating corn shredder
64. Operating corn husker and shredder combined
65. Operating fanning mill
66. (*a*) Pruning fruit trees and small fruits
    (*b*) Training grapes
67. Planting of fruit trees and plants
68. Spraying—(1) fruit; (2) farm crops
69. Tillage of orchard or crops
70. Mulching
71. Thinning
72. Digging borers
73. Preparation for picking fruit
74. Picking fruit
75. Grading and packing fruit
76. Marketing and storage of fruits
77. Treatment of seed potatoes
78. Treatment of seed grain
79. Treatment of small seeds
80. Mixing spray materials and disinfectants—list
81. Weeding lettuce, onions, and garden crops
82. Transplanting garden crops—list
83. Hoeing and cultivating garden crops
84. Spraying and treatment for diseases and insects—list
85. Blanching celery and cauliflower
86. Harvesting and grading garden crops
87. Packing and marketing garden crops
88. Packing, storing and marketing of root crops
89. Operating stationary gas engine
90. Operating stationary kerosene engine

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91. Operating gasoline tractor
92. Operating kerosene tractor
93. Operating hydraulic ram
94. Operating pneumatic water system, make
95. Operating electric motor
96. Operating motor car, kind
97. Operating ditching machine, kind
98. Laying tile drain
99. Running levels for tile drains
100. Staking out drains for ditching

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CHAPTER XX

OBSERVATION OF TEACHING OF HOMEMAKING IN STATE SCHOOLS OF AGRICULTURE

BY A SERIES of coincidences in the illness of teachers, attendance by pupils at a meeting, and the giving of examinations on the day of visit, the surveyor found opportunity to visit only seven lessons in homemaking in the State schools, and those in two schools only. Five teachers were observed. To a less extent, perhaps, than in agriculture, teachers of homemaking in the State schools are specialists. Nevertheless, as compared with teachers of homemaking in the high schools, they are specialists. Courses in sewing, textiles, millinery, etc., are handled by one teacher, in cooking, nutrition, dietetics, etc., by another, and still further divisions occur. The surveyor was impressed with the technical efficiency and resourcefulness of State school teachers. Nor on the professional side did the few seen exhibit serious lack. On the whole, the small amount of work observed was markedly superior to the norm observed in the high schools. State school teachers appear relatively a picked lot.

SUMMARY OF LESSONS OBSERVED

Classroom lessons..... 2 Laboratory lessons..... 5

Subjects	Classroom	Laboratory
Clothing	0	3
Textiles	1	0
Millinery	0	1
Cooking	0	1
Dietetics	1	0
	2	5

TOPICS OF LESSONS

Clothing—Covering buttons
Making a buttonhole
Finishing dresses
Textiles—Characteristics of light fabrics
Millinery—Construction of hat-frames
Cookery—Making corn bread
Dietetics—Daily requirements of the body

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Number of pupils in attendance	Junior	Senior	Total
8	2	0	2
12	1	1	2
15	3	0	3

Aims of Lessons

To systematize the process of button covering
To make systematic record of common textiles
To finish dresses
To learn the methods of lining a buttonhole
To learn the process of making and using base frames
To make corn bread
To determine caloric excess or deficiency in each pupil's diet

Attitude of Pupils

Orderly in all cases

Portion of Class Kept Busy

All in 6 cases; ¾ in one case.

Activity of Class

	Classroom	Laboratory
Active in questioning	0	2
Active in contribution and questioning	1	1
Not active mentally	1	2

Assignment

Oral	5	Time 6 minutes	1
None	2	Record by pupils	2
Given at end	5	Group assignment	4
Time 1 minute or less	2	Individual assignment	1
Time 2 minutes	2		

Text reading, 1; objective data, 4; problem growing out of lesson, 1; project, 1; suggestive guidance given, 3
Evidence of planning by teacher clear in all cases
Careful preparation by teacher in all cases
Preparation by class in 4 cases; none 3 cases
System and unity evident in all cases

Classroom Lessons

Type—development in both cases
Procedure—question and answer, both cases
Concrete reference to pupils' experience, 1
Objective data in hands of pupils, 1
Attention given to evaluation and organization, 2
Attention given to organization, 1

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Laboratory Lessons

Type.—Project, 2; Exercise, 2; Practicum, 1
Group teaching, 3; Individual teaching, 2
Demonstration and practice, 2; Demonstration, suggestion, practice, 2
Direction and practice, 1

Attention given to:
Process analysis, 1
Process analysis and accuracy, 2
Process analysis, accuracy, organization, 2

Rating of Teachers by Surveyor:
Superior teaching, 3
Normally good teaching, 2

Equipment

In equipment of all sorts and in provision for practical experience in direct connection with instruction the State schools are much superior to the high schools. Of the pupils, nothing more can be said than that they are considerably more mature than average high school girls, and in the judgment of the surveyor in general of intelligent type.

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CHAPTER XXI

CURRICULA IN THE STATE SCHOOLS—AGRICULTURE

THE curricula offered for agricultural students in five of the State schools, omitting from consideration the somewhat atypical school on Long Island in the suburban district of New York city, are summarized below. The organization of the "regular" curricula is based on a three-year program of six terms of twelve weeks each. The school year begins in October and ends in April, but pupils may enter at the beginning of the second term as well as of the first. The organization is planned to meet the needs of boys on farms, who must work till completion of harvest in fall, and begin the season's work with the opening of spring. It also enables the meeting of the farm practice requirements of law by assigning pupils to farm employment for six months in the intervals between the freshman and junior, and the junior and senior years of school instruction.

Admission requirements to the three-year curriculum call for an age of sixteen years, completion of the work of eight grades in the elementary school, and acceptable physical and moral qualifications. Graduates of high school courses in agriculture are admitted to junior standing only, in spite of the fact that they have had a decidedly greater amount of preparation in academic subjects than the maximum provided in any State school, and on the average have spent 20 percent more time in the study of agricultural subjects than the graduate of the State school. If the State schools are to serve such graduates without waste and duplication of effort, it would seem that senior standing with permission to specialize wholly in subjects other than those offered in the high school is desirable. In the same subjects the instruction in the State schools is, in the judgment of the surveyor, not superior to that offered in the high school. The advantage that the State schools offer to the high school graduate in agriculture lies in the more specialized electives.

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The organization of the three-year course is founded upon common requirements for all students in the first year, some group election in the second, and a rather large group differentiation in the third year. The unit of credit is the term hour of forty-five minutes' recitation, or 90 minutes' laboratory, daily per week for twelve weeks. The normal year's work requires the satisfactory completion of 46 term hours, with a range of from 46 to 51 in the five schools. Groupings of specialized subjects above the common requirements result in courses in agriculture for several groups of students as follows:

Course	Number of schools offering
General agriculture	4
Animal husbandry and dairying	5
Horticulture	4
Fruit growing	1
Market gardening	1
Poultry husbandry	5
Dairy industry	1

The degree of specialization permitted in such groupings is indicated by total requirements for all students in the several years of the course for the five schools.

TOTAL REQUIREMENTS FOR ALL STUDENTS IN AGRICULTURE BY YEARS

Freshman year	46	46	46	49	51
Junior year	44	20½	40½	40	45
Senior year	37	9	18½	33	40

In three of the schools, then, the range of differentiation for special purposes is small, except the student be capable of carrying more than the load normally necessary to graduation.

Practically all the science, the English and mathematics, and the social science is to be found in the required list. One school provides no history or civics, two no sociology of rural life, four no economics. What is offered in the way of the study of rural life problems is the very minimum. Music, a factor of no mean importance in country living, is offered in only two schools. To the surveyor it appears that the curricula are generally weak in the development of the larger social, economic, and esthetic values implied in a successful country life.

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The range in numbers of elective studies offered is as follows, by schools: 14, 16, 24, 26, 34. The kind, frequency, range in term hours, and representative or median case of such hours, are shown both for required and elective studies in the following tables:

REQUIRED SUBJECTS

Subjects	Number schools	Range of term hours	Median
English	5	8–12	8
Public speaking and parliamentary procedure	5	1–6	5
American history	4	5	5
Civics	4	2–4	3
Economics	1	6	6
Country life problems	3	1–2	1
Commercial law	1	3	3
Physical training	4	6–12	..
First aid	1	1	1
Elementary science	2	3½–7½	..
Biology	2	5	5
Elementary chemistry	3	4–8	8
Physics and climatology	1	5	5
Music	2	2	2
Farm botany	3	4–5	5
Agricultural chemistry	5	3–10	3
Farm arithmetic	5	4–8	4
Farm accounts	5	1–3	2
Bacteriology (milk)	2	1½–5	..
Soils and crops	5	6–10	7
Forage crops	1	4	4
Special crops (forage)	1	4	4
Vegetable gardening	1	4	4
Home orchard and garden	2	2½–5	..
Fruit growing	4	3–4	4
Forestry and grounds	2	1½–3	..
Plant diseases and insects	2	4–5	..
Farm carpentry and drawing	5	2–4	3
Forge work	2	2–4	..
Farm machinery	4	2–4	3
Water supply and sanitation	1	3	3
Concrete construction	2	2–3	..
Surveying and drainage	1	2	2
Poultry	5	2½–3	3
Commercial poultry	1	3½	3½
Incubation and brooding	1	2½	2½
Chick raising	1	2	2
Cattle and stock judging	4	1–2	1
Dairy cattle	4	2–4	2
Elementary dairy and testing	5	2–4	2
Feeds and feeding	5	3½–6	4
Principles of breeding	2	3½–4	..
Horses, sheep, and swine	3	2–3	2½
Farm management	4	4–8	6

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REQUIRED SUBJECTS—(*Continued*)

Subjects	Number Schools	Range of term hours	Median
Farm management and rural law	1	8	8
Advanced agricultural chemistry	1	5	5
Soil fertility	1	3	3
Special crops (farm)	4	1½–4	..
Diseases and insects	4	2–5	..
Advanced farm crops	1	2½	2½
Vegetable gardening	4	2½–15	..
Vegetable forcing	1	2	2
Apple growing	1	5	5
Orcharding	2	2½–10	..
Small fruits	4	1½–5	..
Fruit harvesting and marketing	1	2	2
Floriculture and greenhouse management	2	1–3	..
Farm forestry	2	1½	1½
Concrete work	2	1½–2	..
Forge work	3	1–1½	1
Woodwork	1	2	2
Farm machinery	1	3	3
Surveying, drainage, water supply	4	1½–3	2
History of breeds	1	3½	3½
The horse	1	3	3
Sheep and swine	2	1½	1½
Stock judging	2	1–2	..
Livestock management	1	4	4
Veterinary science	4	2½–3	3
Feeds and feeding (advanced)	1	2½	2½
Breeding	4	2–3½	..
Dairy cattle management	2	2½–5	..
Dairy demonstration	3	2–3	3
Advanced testing	3	1½–6	2
Market milk and dairy bacteriology	4	3	3
Butter and cheese	2	2–3	..
Buttermaking	3	2–3	3
Cheesemaking	1	2	2
Creamery management	1	2½	2½
Ice-cream making	1	2	2
Advanced poultry	2	2–6	..
Poultry breeds and breeding	2	1–3	..
Poultry feeding	1	3	3
Incubation and brooding	2	2–3	..
Structure and diseases of poultry	1	3	3
Poultry house construction	1	3	3
Judging of poultry (utility)	1	3	3
Advanced poultry judging	1	6	6
Poultry practice	1	3	3
Marketing poultry	5	2–3	2½
Poultry farm management	5	2–4	3
Beekeeping	2	1½–2½	..
Farm management	1	3½	3½
Debating	1	3	3
Typewriting	1	1	1

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In addition to the three-year curricula the State schools offer winter short courses of eight, ten, or twelve weeks' duration, to which the admission qualifications are an age of sixteen years or more and ability to read and write. They consist in special groupings of technical studies, with some practice on the school farm into the following courses:

Course	Number of schools offering
Animal husbandry and dairying	4
Horticulture	4
Poultry husbandry	4
Dairy industry	1
Ice-cream making	1

These courses are placed in the winter months at a time when farmers and employed workers can most conveniently leave home for instruction. In addition the staff is largely engaged during the summer months in junior and adult extension teaching in agriculture.

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CHAPTER XXII

HOMEMAKING CURRICULA IN THE STATE SCHOOLS OF AGRICULTURE

THE same five schools as reported for agriculture are included in the report on homemaking.

REGULAR COURSES OFFERED

Name of course	Number of schools	Admission standards	Length of course
Homemaker's course..	1	16 yrs. 2 yrs. H. S.	1 yr. 34 weeks
Homemaker's course..	1	16 yrs. 2 yrs. H. S.	2 yrs. 34 "
Homemaker's course..	2	16 yrs. Grade VIII	2 " 34 "
Homemaker's course..	1	16 yrs. Grade VIII	2 " 30 "
Normal course in homemaking.....	2	16 yrs. 2 yrs. H. S.	2 " 34 "
Trades course in homemaking.....	1	17 yrs.	1 yr. 34 "
Advanced course in home-making	1	Grad. 2 yrs. course	12 "

In one school high school graduates are given one year's credit in admission to the two-year course, other than the Normal Course. Pupils may enter in the second term of the junior year.

In addition a short course of eight weeks is offered and the time of the staff is given to considerable extension work of the junior and adult type.

ONE-YEAR COURSE FOR HOMEMAKERS

ALL SUBJECTS REQUIRED

Subject	Term hours	Subject	Term hours
Civics and English.....	4	Handwork and design.....	½
Physical training.....	4	Elementary cooking	2½
Hygiene and physiology.....	2	Advanced cookery.....	2½
Elementary sewing	2½	Dietetics and invalid cookery...	1½
Dressmaking	3	Housewifery.....	2
Textiles.....	1½	Home nursing and first aid.....	2
Millinery.....	1	Household management.....	2
Laundering.....	1½		

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The course in very small measure attempts to do the work of the high school in academic subjects. It is lacking in emphasis upon the scientific and social implications of homemaking, but is quite comprehensive within the field of homemaking technique and technology. It is clearly and strictly vocational from the standpoint of subject content.

Two-Year Course in Homemaking

Required Subjects

Subject	Number schools	Range in term hours
English	4	6–10½–11–18
Parliamentary procedure	3	2–3–7½
American history	2	5–12
Civics	1	4
Country life problems	1	2
Music	2	2–6
Arithmetic	1	4
Physical training	4	2–3–3–12
Botany	2	4–6
Household physics	3	3–5–9
Household chemistry	3	4½–9–15
Foods and cookery	4	11–15–15–24
Dietetics	2	3–5
Dietetics, sanitation, home nursing	1	7½
Home nursing	3	4–6–9
Household bacteriology and hygiene	2	4½–6
Laundry	2	1–1½
House practice	2	2–6
Handwork	2	3–6
Sewing	4	9–14–15–18
Textiles	4	1½–3–3–4½
Dressmaking	1	3
Millinery	2	1½–3
House plans	1	2
Drawing	1	3
Household decoration	2	4–6
Household management	4	3–3–3–7½
Landscape art	2	3–3
Gardening	2	2–6
Insects	1	3
Psychology	1	9

Approximately synonymous names for subjects have been placed together, and the term hours reduced to a common denominator. The range of differences in content, and particularly in emphasis, is large, but less in the technical subjects than appears, as some such subjects are not standardized in content and overlap variously.

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Again, there is a distinct weakness on the side of social and economic science, and a marked disparity in the offerings in science. The differences in emphasis upon physical training is very large, but all schools include it for girls. The time devoted to sewing and cookery is doubled in the extremes. The technical subjects vary to make a difference in the extremes from the high school type of course to one that approaches the college in differentiation of subjects. On the whole, the technology is comprehensive.

ELECTIVE STUDIES

Subject	Number schools	Range of term hours
Household chemistry	1	12
Food chemistry	1	9
Psychology	1	6
Advanced home nursing	1	9
Advanced dietetics	1	3
Millinery	1	1½
Costume design	1	3
Laundry	1	1½
Handwork	1	3
Basketry	1	3
Art needlework	1	3
Physical training	1	3
Farm mechanics	1	½
Poultry	2	4½
The dairy room	1	¾
Farm buttermaking	1	3
Small fruits	1	3

Schools seldom agree in the matter of electives, and the range of offerings is small—0, 3, 8, and 9. Though preparation for such vocations as millinery, dressmaking, nursing, etc., is an avowed by-product of all courses, yet opportunity to follow up a choice is small. The course is one primarily for homemakers.

THE NORMAL COURSE IN HOMEMAKING

The normal course to prepare teachers of homemaking for elementary schools, and previous to setting up new standards of qualifications in 1920 for high schools, differs from the two-year course described in the matter of entrance requirements, as already noted, and by the addition of the following subjects:

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Subject	Number schools	Term hours
Psychology	2	6–9
Principles of pedagogy	2	3
Methods in teaching homemaking	2	4½
Practice teaching	2	3

Trades Course in Homemaking

The course is not outlined in the printed announcement, but is described as devoted to developing a high degree of proficiency in millinery and dressmaking.

Advanced Course in Dressmaking and Design

Subject	Term hours
Costume design	2
Textiles	2
Pattern modeling	2
Advanced sewing	2
Practical dressmaking	12

What, from an examination, appears to be a typical example of a short course is offered below. The whole may be taken and completed and a certificate awarded, or any part may be taken without certificate. A more intensive treatment of special phases is appropriate to the best short course work. The attempt to boil down the content of the larger course to an eight or ten weeks' program is likely to mean that no one thing is learned well. Further, it is becoming fairly well understood that the average person enrolling for a short course knows what she is after and desires to give attention chiefly to that thing.

Short Course in Home Economics

Subject	Hours per week
Cookery	3
Food values	2
Household management	2
Home hygiene	2
Sewing	2
Millinery	2
Home decoration	2

The course is too short for a homemaking course and too comprehensive for the development of particular home or trade efficiency.

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SURVEY OF NEW YORK STATE RURAL SCHOOLS

THE survey was organized with the following sections and directors:

Administration and Supervision. C. H. Judd.
School Support. Harlan Updegraff.
Teachers and Courses of Study. W. C. Bagley.
School Buildings. J. E. Butterworth.
Measuring the Work of the Schools. M. E. Haggerty.
Community Relations. Mabel Carney.

The results of the studies conducted by these directors and their associates have been embodied in a series of reports. The approximate dates at which these will be available for distribution are:

Volume I. **Rural School Survey of New York State.** (Preliminary Report) May, 1922.

Volume II. **Administration and Supervision,** October, 1922.
The District System. Shelby.
The Supervisory District. Brooks.
The Community Unit. Works.
Principles of Administration. Bobbitt.
The State System of Examinations. Kruse.
Health Education. Peterson.
The State Schools of Agriculture. Holton.
Junior Extension. Holton.
Summary and Recommendations. Judd.

Volume III. **School Support.** Updegraff. August, 1922.

Volume IV. **Teachers and Teacher Preparation.** Bagley. September, 1922.
Elementary School Curriculum. Brim.
Community Relations. Carney.

Volume V. **School Buildings.** Butterworth. June, 1922.

Volume VI. **The Educational Product.** Haggerty. July, 1922.

Volume VII. **The Rural High Schools.** Ferriss. August, 1922.
(The administrative features of the high school were studied in coöperation with Dr. Judd, while teachers and curricula were developed under the general direction of Dr. Bagley.)

Volume VIII. **Vocational Education.** Eaton. July, 1922.
(Prepared under the direction of Dr. Bagley.)

These volumes may be obtained at seventy-five cents each, postpaid, except Volume II, on Administration and Supervision, which will be one dollar. Only a limited edition will be printed and those wishing to make certain of securing copies may place their orders at any time.

Joint Committee on Rural Schools,
Ithaca, N. Y.

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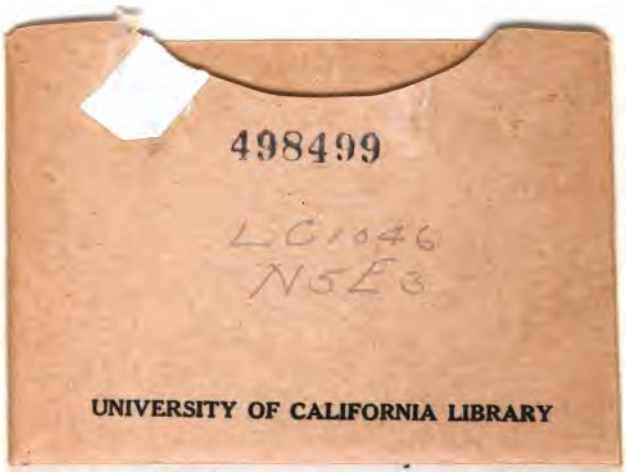

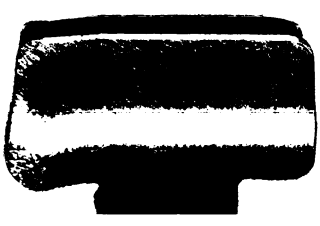

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